```
Set     Items   Description
S1   14002331   CREATE OR GENERATE? OR PRODUCE? OR DEVELOP? OR ESTABLISH?
S2    2412531   MIRROR OR BACKUP OR BACK()UP OR COPY OR COPIES OR STORE? OR
               STORED OR STORING OR SUBSTITUT? OR DUPLICAT? OR REPLICAT? OR
              ARCHIV?
S3    4512453   SECOND OR 2ND OR ADDITIONAL OR ANOTHER
S4    5808096   DEVICE? OR REPOSITORY? OR MEMORY OR STORAGE OR BUFFER? OR -
              CACHE OR REGISTER OR NODE? OR HOST? OR SERVER?
S5   14289405   OBJECT? OR FILE? OR DOCUMENT? OR DATABASE? OR DATA()BASE? -
              OR PROGRAM? OR RECORD? OR REPORT? OR IMAGE?
S6    5534842   PARTITION OR SPLIT? OR DIVIDE? OR SECTION? OR SEGMENT? OR -
              SEPARATE? OR EXTRACT? OR PARSE OR PARSING
S7    5696945   ADJUST? OR SYNCHRONIZ? OR SYNCHRONIS? OR SYNC OR UPDATE? OR
               CONFORM? OR CONVERT? OR AGREE? OR ACCORD? OR BACK()UP? OR BA-
              CKUP? OR RECONCIL?
S8     216302   INPUT()OUTPUT OR I()O OR IN()PUT OR OUT()PUT
S9    2535710   REQUEST? OR QUER? OR QUESTION? OR INQUIR? OR DEMAND?
S10        97   (UPDATE? OR UP()DATE? OR CONVERT? OR ADJUST? OR BACK()UP? -
              OR BACKUP? OR RECONCIL?)(3N)(TIMESTAMP OR TIME()STAMP)
S11       137   (COMPARE? OR COMPARING OR MATCH? OR CONNECT? OR ASSOCIAT? -
              OR CORRELAT? OR VALIDAT? OR VERIFY?)(3N)(TIMESTAMP OR TIME()S-
              TAMP)
S12    552287   S1 (S) S2
S13     66257   S3 (3N) S4
S14   1312546   S5 (S) S6
S15   5698293   RESYNC? OR S7
S16    121559   S15 (S) S5 (S) S2
S17      4763   S8 (S) S9 (S) S5
S18       304   S12 (S) S13 (S) S14
S19         6   S18 (S) S15 (S) S16 (S) S17
S20       175   S18 (S) S15 (S) S16
S21         6   S18 (S) S16 (S) S17
S22         6   S18 (S) S15 (S) S17
S23         3   S10 (S) S11
S24         9   S19 OR S21 OR S22 OR S23
File   2:INSPEC 1969-2004/Feb W3
         (c) 2004 Institution of Electrical Engineers
File   6:NTIS 1964-2004/Feb W5
         (c) 2004 NTIS, Intl Cpyrght All Rights Res
File   8:Ei Compendex(R) 1970-2004/Feb W3
         (c) 2004 Elsevier Eng.  Info. Inc.
File  34:SciSearch(R) Cited Ref Sci 1990-2004/Feb W3
         (c) 2004 Inst for Sci Info
File  35:Dissertation Abs Online 1861-2004/Feb
         (c) 2004 ProQuest Info&Learning
File  65:Inside Conferences 1993-2004/Feb W4
         (c) 2004 BLDSC all rts. reserv.
File  92:IHS Intl.Stds.& Specs. 1999/Nov
         (c) 1999 Information Handling Services
File  94:JICST-EPlus 1985-2004/Feb W3
         (c)2004 Japan Science and Tech Corp(JST)
File  95:TEME-Technology & Management 1989-2004/Feb W2
         (c) 2004 FIZ TECHNIK
File  99:Wilson Appl. Sci & Tech Abs 1983-2004/Jan
         (c) 2004 The HW Wilson Co.
File 103:Energy SciTec 1974-2004/Feb B2
         (c) 2004 Contains copyrighted material
File 144:Pascal 1973-2004/Feb W3
         (c) 2004 INIST/CNRS
File 202:Info. Sci. & Tech. Abs. 1966-2004/Feb 26
         (c) 2004 EBSCO Publishing
File 233:Internet & Personal Comp. Abs. 1981-2003/Sep
         (c) 2003 EBSCO Pub.
File 239:Mathsci 1940-2004/Apr
         (c) 2004 American Mathematical Society
File 275:Gale Group Computer DB(TM) 1983-2004/Feb 27
```

**24/5,K/1 (Item 1 from file: 275)**
DIALOG(R)File 275:Gale Group Computer DB(TM)


01846362 SUPPLIER NUMBER: 17523227 (USE FORMAT 7 OR 9 FOR FULL TEXT)
**Updating internal Borland .obj timestamps.(Tutorial)**
Rubin, Moshe
Windows-DOS Developer's Journal, v6, n9, p72(5)
Sep, 1995
DOCUMENT TYPE: Tutorial ISSN: 1059-2407 LANGUAGE: English
RECORD TYPE: Fulltext; Abstract
WORD COUNT: 2202 LINE COUNT: 00226

ABSTRACT: Creating and maintaining an accurate makefile can be difficult, but Borland includes a feature in its compilers that lets them store the names and timestamps of required header files within each object file automatically. The company's 'make' then uses the internal dependency information and saves programmers from having to maintain the correct and complete list of all header file dependencies. Filenames and timestamps in the Borland scheme are stored inside the '.obj' file, which means standard utilities such as 'touch' cannot affect them. The 'tchobj' 'touch'-style utility is presented that can update Borland's internal timestamps. Borland object files can thus be updated so that 'make' will not cause a recompilation.
SPECIAL FEATURES: illustration; program
DESCRIPTORS: Programming Tutorial; Technology Tutorial; Compiler/Decompiler
FILE SEGMENT: CD File 275

... When it finds such a record, it opens the true file specified in the record, ascertains its **timestamp** , and updates the COMENT record **timestamp** to **match** the true file. This is done for all such COMENT records in the object file.
Listing 1...

**24/5,K/2 (Item 2 from file: 275)**
DIALOG(R)File 275:Gale Group Computer DB(TM)


01504309 SUPPLIER NUMBER: 11986674 (USE FORMAT 7 OR 9 FOR FULL TEXT)
**Acius tool eases SQL database access; together, 4D SQL Server and Sybase SQL Server make a powerful client/server pair. (structured query language)(Acius Inc.'s 4D SQL Server front-end software for Sybase Inc.'s SQL Server database engine) (Software Review) (includes related article on testing methodology) (Evaluation)**
Bethoney, Herb
PC Week, v9, n12, p93(2)
March 23, 1992
DOCUMENT TYPE: Evaluation ISSN: 0740-1604 LANGUAGE: ENGLISH
RECORD TYPE: FULLTEXT; ABSTRACT
WORD COUNT: 1536 LINE COUNT: 00120

ABSTRACT: Acius Inc's 4D SQL Server data-management tool can act as a powerful client/server solution when combined with Sybase Inc's SQL Server database engine. 4D SQL Server includes procedures that let Acius' 4th Dimension relational database (RDBMS) for the Macintosh act as a front end to SQL Server running on a host machine. It uses stored procedures and adds 100 new commands and functions to the RDBMS. The system is easy for 4th Dimension application developers to learn and use, but novice users will find the learning curve steep. Installation is straightforward, and no special software need be added to the SQL Server host. Tests using a simple data-retrieval application show that the query tools are effective, full-featured and easy to use. A 'Cloning' feature lets data be sent from the Mac to Sybase SQL Server, and users can also create new SQL Server tables on the host from a client. 'Transactions' are sets of functions used to preserve data integrity by informing the server of changes made on the

client and instructing the server to make the changes permanent. The included DB Debug tool is easy to use but slows response time on the client somewhat.

SPECIAL FEATURES: illustration; table
COMPANY NAMES: Aci-us Inc.--Products
DESCRIPTORS: Data Base Front-End Software; Evaluation; Software Packages; Client/Server Architecture; Application Development Software
SIC CODES: 7372 Prepackaged software
TRADE NAMES: SQL Server (DBMS)--evaluation; 4D SQL Server (Program development software)--evaluation
OPERATING PLATFORM: Apple Macintosh
FILE SEGMENT: CD File 275

... stamp for each row of data is recorded by 4D SQL Server, and when a row is **updated** , its recorded **time stamp** is **compared** with the current host time stamp. If the two values do not agree, 4D SQL Server assumes...

**24/5,K/3 (Item 3 from file: 275)**
DIALOG(R)File 275:Gale Group Computer DB(TM)


01350444 SUPPLIER NUMBER: 08157244 (USE FORMAT 7 OR 9 FOR FULL TEXT)
**Comloging; if you want a sure-thing backup, use Comlog. (technical)**
McDaniel, Steve
DG Review, v10, n8, p26(4)
Feb, 1990
DOCUMENT TYPE: technical ISSN: 1050-9127 LANGUAGE: ENGLISH
RECORD TYPE: FULLTEXT; ABSTRACT
WORD COUNT: 2050 LINE COUNT: 00162

ABSTRACT: Users of AOS, AOS/VS or AOS/VSII already have COMLOG (Common Logger) available. The program is usually used together with INFOS II, though it will work with DG/DBMS. Used together the programs provide enhanced data security and a reduction of downtime. There are, however, some performance tradeoffs. A separate tape drive will have to be dedicated to COMLOG. Disk drive users will have to put their logfiles on a separate disk than their INFOS II file. The COMLOG process will have to be monitored, whether tape or disk is used. Setup procedures are delineated, as are crash recovery procedures.

COMPANY NAMES: Data General Corp.--Products
DESCRIPTORS: Back-Up Systems; Data Security
SIC CODES: 7372 Prepackaged software
TICKER SYMBOLS: DGN
TRADE NAMES: COMLOG (Computer program)--Design and construction; Infos II (Computer program)--Computer programs; AOS/VS II (Operating system)--Computer programs; AOS/VS (Operating system)--Computer programs
OPERATING PLATFORM: VS
FILE SEGMENT: CD File 275

... anything in the database after you make your archive backup.
Using IFILE to change the file mode **updates** an internal **timestamp** in the INFOS II file. This timestamp is used by IRECOVER to make sure it has the correct logfile. If the timestamp in the COMLOG files does not exactly **match** the **timestamp** in the file, IRECOVER will refuse to apply any of the logged data.
Consider if the following...

**24/5,K/4 (Item 1 from file: 647)**
DIALOG(R)File 647:CMP Computer Fulltext


01021258 CMP ACCESSION NUMBER: NWC19940701S0976

**Consolidate Your NetWare File Servers** (File Servers)
Shane R. Yamkowy
NETWORK COMPUTING, 1994, n 508 , 141
PUBLICATION DATE: 940701
JOURNAL CODE: NWC LANGUAGE: English
RECORD TYPE: Fulltext
SECTION HEADING: Hands-On
TEXT:

Do more with less? Sounds impossible in the network game, but we discovered it's not. We've consolidated our five main NetWare v3.11 **file** servers into one superserver that services more than 300 users. We've controlled costs, tried to reduce the risk of downtime, made the network more bulletproof and easier to administer, and created a simpler network environment for our users. If, after reading this article, you decide to go down this path, too, be prepared. "You're just recreating the mainframe environment," they'll say. To which we reply, "Remember, the mainframe proved that a single point of failure can be a manageable resource." Configuring Your Superserver First, we needed a superserver with lots of power and expandability, but at an acceptable price/performance point. We chose the Compaq ProLiant 2000, primarily because of its high-speed internal bus structure, its appropriate price, Compaq's close **development** relationship with Novell and its excellent technical support. To configure the superserver, we had to find a NetWare license for more than 250 users. The only option was to use NetWare v4.01, which comes in 500- and 1,000-user configurations. We decided to use 1,000-user NetWare, but only in Bindery emulation mode. Users would not have to learn NetWare Directory Services (NDS) and we would not have to change the network drivers on their PCs. This approach is also a nice stepping stone to NDS. When your users are ready for it, you just need to do some reconfiguration of NDS and change the network shell driver on the PCs from NETX to Virtual Loadable Modules (VLMs). We're currently using NETX to hide the NDS from users so they still see a NetWare v3.x **file** server. When the time comes, switching to VLMs will make the NDS visible. Hard Drive **Questions** We added up the current hard drive space on the existing servers, assuming this should be the maximum necessary to start, and then added 50 percent for expansion. Then we thought about how much data protection we wanted on the hard drives. We considered RAID 0, 1, 4 and 5, but focused primarily on RAID 1 ( mirroring) and RAID 5 (data and error protection striping). We decided to use RAID 5 since our projected hard drive capacity was about 12 GB. To buy twice as much hard drive and **mirror** the volumes seemed like a waste of money, considering the low occurrence of hard drive failures and knowing RAID 5 protects us against any single drive failing. We thought the 93 percent usage provided by the Compaq Smart SCSI controller was a much more cost-effective approach. RAID 5 also provides increased performance on reads and writes. The more hard drives you have, the more simultaneous reads and writes you can execute, as the data is striped evenly across all drives. But since error protection is being written with data each time, you will get only half as much increase in write performance as you do in read performance. We were ready to go with 12 GB until we tried to install some hard drives that were shipped late to us. We tried to add the drives to the existing volume, but when we started up NetWare, the volume appeared to be corrupted. Recovering from the problem reminded us that to expand a NetWare volume using RAID 5 means you have to destroy the volume, add the new hard drive(s), and then recreate the volume and put the data back. As a result, we decided to buy the maximum number of hard drives (14), giving us 28 GB. Two GB go to data protection, and 1GB goes to the system volume, leaving our users with 25 GB for data. If we need to add any more drives, we will buy a second RAID controller and add drives as a new volume, rather than go through the pain of destroying the current volume and rebuilding it with the **additional** hard drives. Jogging **Memory** Memory is NetWare's lifeblood, since it caches everything. We decided to buy 16-MB single in-line memory modules (SIMMs) and fill up the SIMM slots. Combined with the 32 MB that came on-board, we ended up with 160 MB. We made sure to buy error correcting memory. If you do not use error correcting memory and your server experiences a parity error, your server will crash. Error correcting memory is an important step in making your superserver reliable. With 13 GB of our hard drives

full and our users keeping approximately 1,000 **files** open at all times, our memory usage sits with 100 MB of memory available for **file** caching. Everything appears to be working and we are prepared for expansion. Rev the Engine Next, we had to choose the CPU or "engine" for the superserver. The CPU does three main jobs: It manages client **requests** to and from the network cards, runs NetWare Loadable Modules (NLMs) and manages **input / output** ( I / O ) **requests** from the hard drive system. You can reduce the CPU's work managing the hard drive system by using a RAID controller with a RISC CPU on-board to do the work instead. Our Compaq controller came with one. In the past, our **separate file** server CPUs had not been taxed on NetWare v3.x **file** servers, due to the low number of clients on each and their relatively small hard drives. But with the high number of clients and NLMs we are running on the superserver with NetWare v4.01, we found the CPU can easily be pushed to 50 percent to 70 percent utilization and remain there. Seeing this happen at other locations, we bought the fastest, most powerful CPU we could find: a 66-MHz Intel Pentium. In choosing network cards, we focused on performance, and CPU and EISA bus utilization. After some testing, we chose the Compaq NetFlex-2 Ethernet cards, which have been fine-tuned to take advantage of the ProLiant's proprietary memory and EISA buses. With our traffic load, we usually experience an average of 40 percent CPU utilization with 10 percent EISA bus utilization using our two Ethernet cards. We finished our superserver configuration by adding a CD-ROM drive, an intelligent Compaq uninterruptible power supply, an internal modem and Insight Manager from Compaq, which monitors more than 100 different operating parameters and logs them for you. **Backup** Server When you consolidate, your **backup** requirements will change, especially if you are running **backups** from multiple servers that are about to be consolidated. We strongly recommend that you build a small, **separate** NetWare **file** server that is only used for **backups** in essence, a **backup** server. This eliminates the chance that the **backup** software will take down your production server, and you can use the **backup** server to rebuild quickly any production server that goes down. As your network grows above the 10-GB mark, we strongly recommend you consider a tape exchanger for **backups** . These self-contained units are composed of one or two tape drives, a robotic arm and a tape cartridge holding 12 to 15 tapes. This allows lots of capacity to get **backups** done without changing tapes manually. The multiple tape drives reduce **backup** time by doing simultaneous **backups** , and you can make **copies** of your tapes to send off-site for disaster recovery. Collapsible Backbone Using a superserver will focus a tremendous amount of traffic on a single point, and you will find the traffic patterns on your user floors increasing as they begin to chase after many of the same **files** . So the final step to a low maintenance, flexible network is a collapsible backbone. Our backbone consists of three layers: Cisco routers, Kalpana EtherSwitchers and Cabletron hubs (see "Superserver Surroundings"). The Cisco routers on a Fiber Distributed Data Interface (FDDI) ring give us a connection to our WAN and support our two TCP/IP subnets. The Kalpana EtherSwitchers give us high-speed bridging in front of the Cisco routers, as most of our traffic is local to our subnets (see "Quick Switches" on page 145). Using an Ethernet switcher also lets us use Balance NLM from Network Specialists, Lyndhurst, N.J., for load balancing. With load balancing, we can plug as many Ethernet cards as we want into our server and the Ethernet switchers, and NetWare will treat them all like one large network. Two 10-Mbps Ethernet cards in our server now give us an effective 10 Mbps to 20 Mbps. Load balancing is a simple, low-cost method of increasing throughput without expensive alternatives, such as 100-Mbps Ethernet, FDDI, straight fiber or Asynchronous Transfer Mode (ATM). Finally, on each user floor the Cabletron hubs are " starred" together, with one hub connected directly to a Kalpana port and the other hubs connected to that "master'' hub. This makes it easy to **split** a hub onto a new Kalpana port when traffic becomes too heavy. We expect to see consolidation of NetWare **file** servers become much more common. Based on our experience, we wouldn't be surprised if superservers and collapsible network backbones become the preferred approach to large networks over the next two years.J Shane R. Yamkowy works at AMOCO Canada in Calgary, Alberta, on the Finance Network Management Team. He can be reached on CompuServe at 75210,1563.

TEXT:
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24/5,K/5 (Item 2 from file: 647)
DIALOG(R)File 647:CMP Computer Fulltext


00605907 CMP ACCESSION NUMBER: NWC19911001S1306
**AT&T StarGROUP Version 3.4: Still an Understudy** (Reviewed Revealed Revised )
Bruce Robertson
NETWORK COMPUTING, 1991, n 210 , 20
PUBLICATION DATE: 911001
JOURNAL CODE: NWC LANGUAGE: English
RECORD TYPE: Fulltext
SECTION HEADING: Logging On
TEXT:

AT&T StarGROUP version 3.4 is a network operating system not quite ready to take on a starring role. This implementation of LM/U (LAN Manager for Unix, formerly known as LM/X) doesn't support very many network adapters, doesn't certify third-party server platforms, and doesn't handle name spaces as well or as elegantly as Novell's NetWare. Its DOS clients need at least 100 Kb of RAM in most situations. Its LAN Manager support is a version behind Microsoft's OS /2 server version. And being built on top of both Unix and LAN Manager code, it's neither fish nor fowl. Nevertheless, it can be a worthwhile network operating system in environments with both Unix and LAN Manager clients, particularly because it incorporates **file** and print service support for Macintosh and Unix clients, which Microsoft's OS/2 LAN Manager version 2.0 does not. StarGROUP has some very exciting features, which we compare to those of other network operating systems in this review. It outdistances Microsoft's OS/2 LAN Manager 2.0 in DOS client transport protocol flexibility (OSI, NetBEUI and TCP/IP), integrated services (Mail, SNA, TCP/IP services), and multiple-client OS support for **file** and print service (DOS, Windows, OS/2, Macintosh and Unix). In offering OSI protocols for DOS and OS/2 clients, StarGROUP has some networking alternatives that even NetWare v3.11 does not. When and if AT&T fixes the problems that exist with the current version, this network operating system could be ready to reach for those stars. **File** Sharing As with any LAN Manager implementation, DOS and OS/2 users are supported for **file** service on StarGROUP. Support for Macintosh and Unix clients on the server is also included. DOS and OS/2 clients can see and use Macintosh **files** , and vice versa. Network managers can set up shared directories on the **file** server, which are really just Unix subdirectories that may be published for or shared by each kind of client. A DOS client, for example, could connect to a shared area with the NET USE command, and **establish** a drive letter that points to that directory structure. These shared areas can be **separate** for each client type, or the network manager can publish the same subdirectory for all clients, **establishing** a single subdirectory structure in which all supported clients can share data. The network manager can add or change shared drives to different directories at any time, without having to change the underlying Unix subdirectory structure. This contrasts with NetWare's approach, where volumes (which are equivalent to shared drives) are fixed partitions on the disk. StarGROUP does not help the user much in the area of **file** name transparency between client environments. Unix supports upper-case characters (but not spaces) in **file** names, so OS/2 and Mac users aren't compromised much in saving **files** . But for a DOS user to see an OS/2 or Mac or Unix **file** , it must either be named in the typical 8.3 format of DOS **files** , or the DOS user must manually rename it. The **file** name also must be all lower case; even though a DOS user always sees upper-case names, **files** from DOS clients are **stored** with lower-case names on the StarGROUP/ Unix server. If a DOS user wants to access a Mac **file** whose name included spaces and upper-case characters or a long **file** name, the DOS user must first run the uren command to permanently change the Mac **file** name to a DOS 8.3 name. After this, the DOS client can see the **file** with normal DOS applications or the DIR command. Otherwise the DOS user can only view the **files** using the udir command, which displays a Unix ls -al style listing. NetWare does this more elegantly, saving all **files** in

native names and offering automatic unique truncation of non-native names to the DOS format. DOS and OS/2 clients should use NET COPY to copy Mac files , instead of a simple COPY ; this moves the resource fork information associated with the Mac file . Resource fork information includes the icon and the document creator code. Novell has a similar utility built into its NCOPY utility. DOS clients can also run the ud command to convert text files from Unix or Mac formats to DOS formats. This step is not required when applications used on the Mac and PC (Microsoft Excel, for example) can use the same binary data file format. StarGROUP also supports Microsoft Windows 3.0 running in all modes on DOS clients, although setup when using StarGROUP's extended and expanded memory versions of the client software is not simple, and documentation is non existent. The README file on the required 3.41 client update disk does not come close to providing adequate information about configurating StarGROUP with Windows. AT&T support referred us to Microsoft to talk about Windows questions , but a call into Microsoft's technical support for Windows indicated that there is almost no information on StarGROUP and what it might require for Windows 3.0 support. (If these two companies are supposed to be close partners for LAN Manager, no one has told their tech support departments.) Unix File Sharing Unix workstations can share disk volumes on the StarGROUP server via NFS or RFS. As described previously, shared volumes can coincide on the server's directory structure with those shared by Mac and DOS users. The StarGROUP server can also mount other remote RFS or NFS drives, but despite documentation claims to the contrary, we were unable to get these remote file systems to be shared with native DOS or Mac clients. Security for NFS clients is different from that of the LAN Manager clients of StarGROUP, and requires a different setup. The Unix client's own /etc/passwd entries have to be set up with the same user ID and group ID numbers as entries on the StarGROUP server. User names on the Unix side of the server can be linked to LAN Manager names, but the security settings enforced on the Unix user are not the ones set in LAN Manager. If a Unix user wants to access a file on a shared directory, the Unix administrator must give him or her access to it with normal Unix utilities. Conversely, LAN Manager security does check to see if Unix security settings are more restrictive, and will honor the most restrictive rights for a DOS or Mac user, so changing security via Unix administration can have side effects on LAN Manager security administration. If Unix takes away permissions, LAN Manager can never give them back. Unix wins all rights disputes. This, of course, is less than ideal. Why have more than one administration system for the different users? StarGROUP administrators currently need to know Unix and LAN Manager security at a minimum to manage properly, particularly if they have both types of users. We feel AT&T should overcome this lack of transparency and eliminate either the Unix or the LAN Manager security structure (or both) in favor of a single system. Already, Macintosh users have been incorporated in the LAN Manager security structure, with no great loss for the Mac users or administrators. It would be a great waste of training time if LAN Manager security administrators had to learn Unix security structure to manage environments that might have no Unix connection requirement_and vice versa. However, we recognize that all network operating systems that try to integrate these very disparate environments_Portable NetWare, for example_have trouble with this as well. Sharing Printers StarGROUP supports printing from all clients to all printers, including both server-attached and remote client printers. The remote client printers supported include LocalTalk- attached Apple LaserWriters, DOS client serial and parallel printers, and remote Unix printers. The exception to this is that Macintoshes cannot print to a DOS client-attached printer, but this feature is expected to be added in the next release. Essentially, all printer queues created on a StarGROUP server are Unix queues. Though we did not test this, AT&T claims that Unix queues can use scripts to support other remote Unix printers, transparently to the users of the queue. Macs can print directly to LocalTalk LaserWriters, or choose to use the StarGROUP queues. StarGROUP can keep Macs from printing directly to LocalTalk printers and require users to print to a queue where access security can be enforced. LocalTalk devices, however, cannot be supported directly from the StarGROUP server,

since StarGROUP does not support a LocalTalk NIC in the server. A separate third-party LocalTalk-to-Ethernet AppleTalk router is required to gain access to the LocalTalk network and its printers. In tests from a Windows 3.0 client using the Apple LaserWriter Plus printer driver, and from a Macintosh, printed output went easily to the LocalTalk LaserWriter through a software AppleTalk router set up in our lab. Setting up the printing functions was very simple_something that cannot be said about setting up NetWare printing. On the Unix side, after setup on the Unix client for a remote printer on the StarGROUP server, we were able to print to the same LaserWriter. Printer access security is supported for DOS and OS/2 workstations, but not from the Macintosh, in keeping with Apple's standard AppleShare convention, unless the special LocalTalk printer security feature described above is enabled. More flexible support for multiple LaserWriters per queue is also not available in Apple's one queue/one printer paradigm. StarGROUP adheres to these conventions in their Macintosh support. Unfortunately , StarGROUP does not offer the ability to look at and control queues from the Macintosh client, but only from the Unix console and from DOS Enhanced and OS/2 workstations. Though StarGROUP does offer file service and print service to Mac clients, messaging is not supported, nor is the ability to execute Unix commands on the server, as from DOS or OS/2 workstations. Figure 1 on page 23 provides a rundown of printer and file service access for StarGROUP clients. Beyond File and Print Services PCs can also use the included Kermit terminal emulation over any supported StarGROUP protocol stack to log into the StarGROUP server for remote console work, or to access other Unix applications that might be available on the server. This is a nice alternative to telnet service, which would require full TCP/IP support on the client workstation. There is no equivalent terminal emulation package for the Mac client. NetWare 3.11, in contrast, offers a number of additional areas of Macintosh support, including a Macintosh INIT, called Notify, to receive messages. There is a desk accessory to send messages, work with print queues and perform some security administration tasks. Still, NetWare does not offer full administration from a Mac client, nor is there remote console support from the Mac. With third-party TCP/IP protocols, a Mac user could telnet into the server and perform console operations that way, but a StarGROUP-style intrinsic solution would be better, including a Kermit -style emulator to run over AppleTalk to the server. AT&T offers a large number of integrated software options for the StarGROUP server. Asynchronous outgoing terminal emulation and incoming DOS remote shell dial-in are supported on AT&T serial-port cards, as well as normal Unix terminals and modems. AT&T StarMail and SNA services are offered. As with Banyan VINES (and increasingly so with Novell's other software products), these services can be supported simultaneously on the server platform. With these additional services packages, however, StarGROUP supports only DOS, and in some cases OS/2, but not the Macintosh. Of course, third-party products can support Macs for many of these functions, so same vendor support is not a requirement; but it can be a useful "one-stop-shop" solution for the corporate buyer looking for the security of single-vendor purchasing and support. One interesting feature of StarGROUP is that the server itself can process DOS tasks with the Unix Simul-Task program . In conjunction with the StarGROUP Simul-Task Client Interface Program , a DOS virtual machine can access network resources like any DOS client. This feature has many possible uses. For example, Unix could be set up to execute a DOS batch file on a scheduled basis to perform required tasks on the LAN Manager server or out across the network without dedicating a separate DOS machine to this. LANs, Protocols and NICs AT&T has taken the intelligent approach that the world does not need another proprietary DOS protocol stack. StarGROUP supports DOS clients by running LAN Manager services over an OSI TP4 transport. AT&T is the only NOS vendor currently using the OSI transport. StarGROUP supports any NDIS NIC driver on the client side for Token-Ring and Ethernet LANs. Unfortunately, the DOS client RAM requirements are typical of the high usage of many LAN Manager implementations. Using default recommended parameter settings, but without memory management, Enhanced clients take 133 Kb and Basic clients take 107 Kb. With HIMEM.SYS and EMM386.SYS, Enhanced is 62 Kb and Basic is 39 Kb. The Enhanced DOS client is required for centralized logon support and administration

functions. In addition, with the TCP/ IP Support **Program** offering, DOS clients on Ethernet can access these same LAN Manager services over a TCP/IP transport. AT&T remarkets FTP Software's TCP/IP for DOS clients, which is included with this option at a fairly reasonable price. The FTP software also includes applications such as telnet and ftp. Other LAN and protocol choices are summarized in Figure 2 on page 24. Additional protocols supported include IBM LAN Server's NetBEUI for Token Ring DOS and OS/2 clients. Though not officially announced yet, AT&T plans to include Novell's IPX/SPX in the future. Physical network topologies supported directly in the server are Ethernet and Token-Ring. ARCnet is not supported. The server requires special Unix drivers, and so has a very restricted list of NICs supported, currently including only AT&T's own Ethernet cards and IBM's 16/4 Token-Ring card. The StarGROUP server does not offer routing services for any protocol other than TCP/IP, and that only on Ethernet NICs. Larger internets will require third-party routers for the other client protocols supported by StarGROUP_OSI TP4, NetBEUI and AppleTalk_to provide network **segmentation** . OSI routing is available to WAN interfaces, but not between LANs in a single StarGROUP server. Therefore, the StarGROUP server is an end point for most client protocols. A single NIC in the server can support any and all protocols at one time (except protocols that can only run on one specific LAN architecture). Alternatively, different NICs can support different protocols, but a given protocol can run on only one NIC at a time (except TCP/IP). Server Hardware In addition to the paucity of supported server NICs, AT&T currently only officially certifies its own StarServer servers. StarGROUP is supported on AT&T's multiprocessor StarServer/E. AT&T has announced it will also support the NCR System 3000 platform. We encountered some instability with StarGROUP on the Compaq server during our testing; however, we had similar problems on the certified StarServer/E. After installing product options, and reinstalling them after figuring out what we had done incorrectly, the server often would not load the Macintosh server software automatically on rebooting. We had to manually enable it by toggling the AppleTalk protocol stack off and on again with the server console utilities. In addition, bringing down the OSI protocol stack (which should affect only the users of LAN Manager on that one protocol) actually stopped the DOS and OS/2 server for everyone, and the Mac server as well. More flexibility and robustness is needed here. There were occasions when restarting services caused the server to get stuck, requiring a hard reboot of the server. Hard reboots of a Unix server are not easy on the Unix **file** systems. This lack of support makes migrating to StarGROUP from another NOS running on existing IBM or Compaq or compatible 386/ 486 servers an exercise in trust and in-house testing. We strongly recommend that AT&T work to expand its certification **programs** to include third-party hardware. This lack of a certification **program** is indicative of a company that is trying to sell its own hardware at the expense of its software. We note that AT&T has managed to have its StarServers certified to run NetWare and VINES. User Administration StarGROUP does not support network volume, network printer or user administration from Macintosh clients, but does from both DOS Enhanced and OS/2 clients with the full-screen NET ADMIN menu utility. Any client that can telnet into the server can access the full-screen SYSADM menu utility, which is required for many **additional server** configuration and maintenance tasks. The server console SYSADM utility provides only the more difficult command line NET ADMIN interface. Even with most administration of DOS, OS/2 and Macintosh users and resources available through the NET ADMIN utilities, we highly recommend network managers have some Unix experience. During our testing, we found that AT&T support personnel often sidestepped the SYSADM utilities to work on server configuration issues, and asked that we use the Unix vi editor or other Unix utilities to directly modify Unix **files** . If Unix users are supported on a StarGROUP server, Unix expertise is a requirement. Despite the **documentation** 's insistence to the contrary, Macintosh and DOS users cannot share a single user ID in both environments when centralized logon service is enabled. The "Use Script" check box must be set to "No" for Mac logins, but to "Yes" for DOS logins. LAN Manager Interoperability AT&T's LAN Manager support is not at the same version as Microsoft's OS/2 server version; currently StarGROUP is compatible with LAN Manager 1.1, but

Microsoft is at version 2.0. With recent announcements of enhanced cooperation between Microsoft and AT&T, particularly that AT&T will take over the reins from HP in the LM/U version of LAN Manager, we feel that this version gap should improve significantly, even beyond AT&T's stated goal of running less than six months behind Microsoft's releases. AT&T is expected to release its 2.0 support in StarGROUP 3.5 by the end of 1991, but in the same time frame Microsoft is expected to upgrade OS/ 2 LAN Manager to 2.1, which will include Macintosh support, though no specific announcements on these releases have been made yet. There are a number of features that will enhance the StarGROUP implementation in LAN Manager 2.0, including a domain name service support and **replication** , as well as enhanced API support and security functionality. In the domain scheme, multiple servers can be administered as though they were one. This service (currently available in OS/2 LAN Manager 2.0) is comparable to Novell's Name Service. Currently, however, StarGROUP does not interoperate as well as it should with Microsoft's LAN Manager 2.0. Conclusion AT&T needs to recognize that the StarGROUP software is a much greater part of the network computing puzzle than its server hardware. A continued focus on supporting only proprietary hardware with StarGROUP will make this network operating system unpalatable to many corporations. Novell, with its focus squarely on the NOS itself, divorced from hardware, has helped itself to the dominant industry position in the NOS marketplace. It will take an open and concerted effort by AT&T to make headway in this market. An enhanced StarGROUP should be worth the effort. StarGROUP v3.4 Prices: Unix System V, Release 4.0, v2.1 2 users: $595 16 users: $995 to upgrade from 2 users Unlimited users: $1,795 to upgrade from 16 users StarGROUP LAN Manager Server (386), v3.4 8 users: $1,995 Unlimited users: $3,795 StarGROUP Server for IBM LAN Clients v3.4: $795 StarGROUP TCP/IP Software, v4.0: $495 StarGROUP NFS/RFS Network Package: $495 StarGROUP TCP/IP Support **Program** , v1.0 (includes FTP Software's DOS client protocol stack, telnet and ftp applications, and NetBIOS) 8 users: $1,150 Unlimited users: $2,525 AT& T Simul-Task Release 3.0 for the server: $695 StarGROUP Simul-Task Client Interface **Program** v3.4: $449 StarGROUP Server for Macintosh, v3.4 8 users: $795 Unlimited users: $1,295 AT&T Computer Systems 1 Speedwell Ave. Morristown, NJ 07960 (800) 247-1212 Circle reader service 316 Over the past year, Network Computing has reviewed each of the major network operating systems, all in their latest shipping versions as of September 1991: * Microsoft LAN Manager 2.0, reviewed November 1990; * Novell NetWare v3.11, reviewed June 1991; * Banyan VINES 4.10, reviewed September 1991; * AT&T StarGROUP 3.4, reviewed in this issue. Based on this work, we are proud to present our Well- Connected Award to Novell for its NetWare v3.11 product. NetWare 3.11 is currently the network operating system that best fulfills the promise of multiple client and protocol support for the most flexible interoperability for users. NetWare 3.11 provides the best support for the widest range of clients, covering DOS, Windows, OS/2, Macintosh and Unix clients. It does so elegantly and using, wherever possible, the native protocol to a client, such as TCP for Unix machines. **File** names are **converted** automatically so that different clients can view **file** names, even names that don't fit each client's conventions. NetWare also has the widest support for adapters (both workstation- and server-based), platforms and peripherals. In terms of **file** service performance, NetWare has consistently excelled over its competition something that some of the others have only recently equalled with their latest versions. The other operating systems are still playing catch-up with NetWare. Take, for example, Mac client support. While AT&T's operating system does support Macs, it is not as well-crafted as Novell's. Also, Mac users can't use the same login names as DOS users_a major hassle for network administrators. And both Microsoft and Banyan have promised to improve their multiple clients support, including adding Mac clients, in their next versions. We hope they learn from Novell's early lead. Another example is support for TCP/IP protocols. Still lacking in Microsoft's LAN Manager (it's promised for the next release), Novell's implementation exceeds that of AT&T and Banyan in terms of functionality and ease of use. Our chart on the next page covers Microsoft's version of LAN Manager and omits IBM's LAN Server. We feel that apart from administrative features, the releases of LAN Server that have been available in the time frame up through and including the release of LAN Manager 2.0 are not sufficiently

different from LAN Manager to have warranted a **separate** review of LAN Server. Certainly, this will not be the case a year from now, as both IBM and Microsoft intend to take the products in two different directions. NetWare is far from perfect. While it was the first product to offer support for Windows clients, Banyan's latest version does a better job in terms of being able to browse network resources. NetWare's Macintosh printer support is still quite limited and its wide area links and directory services are nowhere as sophisticated as Banyan's. And Microsoft offers many features such as **file replication** , peer services and remote **program** execution that are still missing from NetWare 3.11. But on balance, NetWare 3.11 is the state-of-the-art in network operating systems at the time of this writing. It is the measuring stick against which the other NOSes have to measure. There is no denying the others are getting close, but in performance and feature suite, Novell's NetWare stands above the rest. _The Editors REVIEWED HP LaserJets Get a Network Connection Network analysts know Hewlett-Packard's printer division for its ability to **produce** excellent products at fair prices, even at the expense of making other parts of its own product line obsolete. HP performs this magic once again with its Network Printer Interface adapters, delivering direct LAN connections for the LaserJet II, IID, III and IIID. HP's prior LAN connection strategy for laser printers was based on the HP 33480A LAN Connection. This large device sat under a LaserJet and served as an intermediary between the LAN and the parallel port of a printer. Unfortunately, the parallel port itself became a bottleneck when printers were connected to high-speed Ethernet and Token-Ring networks. When HP introduced the IIISi printer , it broke from tradition by giving the IIISi a direct LAN attachment within the printer (see "The LaserJet IIISi: A Monster Laser Printer," April 1991, page 27). This new attachment bypasses the parallel port, using instead a faster alternate **I / O** bus that connects directly to a network adapter. Like the IIISi LAN connection, the Network Printer Interface uses a Motorola 68000 CPU operating at 10 MHz as the brains for the adapter. The card slides into the LaserJet's optional **I / O** slot. Network interfaces are available for Token-Ring, thin Ethernet or 10BASE-T. Queue **requester** software for supported networks (Novell NetWare, 3Com 3+Open, Microsoft LAN Manager and IBM LAN Server) is built into the device's ROM. The device also contains a status switch, which **queries** the state of the adapter and prints a status page in five languages. Connects LaserJets The Network Printer Interface can connect all LaserJets, except the personal printer models IIP and IIIP , to the network. However, those network users who expect the LAN attachment to turn their other LaserJets into speed demons should understand that the printer engines within the II, IID, III and IIID remain unchanged. While HP designed the IIISi from the beginning to be a LAN-attached printer, the other printers were not designed with 17 ppm throughput in mind. Consequently, even though the server can deliver the print stream at LAN speeds, the engines within these other printers cannot process the print streams as fast as the IIISi. Performance Tests We tested the Network Printer Interface on a network with a Novell NetWare 2.15 25-MHz 386 4-Mbps token ring **file** server. In the tests below, our server only passed the queue's packets along to a print server, either on the NPI card or a dedicated PSERVER. We first tested printing through the parallel port of our desktop workstation a 16-MHz 386sx PC by printing a 677,774-byte PCL **image** and timing the results with a stopwatch (see Figure 3). We then spooled the same job to the same printer, now equipped with the Network Printer Interface and attached directly to the network cable. Our tests showed print timings roughly twice as long as the print job through the parallel port, mostly due to the large server spooling times caused by the slow server. A faster workstation, a faster server , or a faster network would reduce the total time to print in both cases. The real speed increase for graphics printing showed up when we compared print times for HP's new device to those of a 16-MHz 386sx PC running Novell's print server software PSERVER, an alternative employed at many sites. The NPI printed the **file** 36 percent faster than a dedicated print **server** , for only the **additional** cost of the NPI for the printer. _Gary Gunnerson Network Printer Interface Prices: Token Ring 16/4: $795 Ethernet: $695 Hewlett-Packard Co. 19310 Pruneridge Ave. Cupertino, CA 95014 (800) 752-0900 Circle reader service 317 REVIEWED Macintosh-to-IBM Connectivity:

The 3270 SNA Gateway Approach Macintoshes have often gone their own way in providing computing solutions, but in the corporate environment, all roads eventually lead to IBM. When it comes to making a networked Mac look like an IBM 3270 terminal, more and more gateway solutions are available, offering large cost savings over standalone IBM connection solutions. The Macintosh 3270 gateway lineup currently includes products from Tri-Data, DCA, Avatar and Apple. Novell is also expected to release a Macintosh client for its new NetWare for SAA gateway later this year. Advanced emulation features available on Macs include support of most terminal types and extended attributes, with easy-to- use font sizing, keyboard remapping and window management, and even simple macro facilities. The vendors all provide special IBM character screen fonts to be loaded into the system **file** with the Font/DA Mover. Concurrent sessions and easy switching to other applications are not a problem as with DOS machines, assuming there's enough RAM in the Macintosh for the 600 Kb to 900 Kb that the drivers and the emulation **program** require. These products are more flexible than DOS gateway solutions because of their Macintosh client's innate capabilities. All vendors either already have or will soon have a System 7 compatible client software version of their emulation. On the gateway side, however, the products all offer slower **file** transfer performance than most comparable DOS gateways, and need better gateway management and security features. All these vendors need to work on better security integration with AppleShare and other NOS security systems and faster **file** transfers. We found that many features are common to all of the major gateway products. What distinguishes them are a few distinctive features, **file** transfer performance, price and hardware limitations. We also offer this caution: Any host gateway should be carefully tested in the actual production environment to determine if any additional complications will break the gateway. Gateways are notorious for working well in labs and tests, but not under production loads on a mainframe. Building Blocks Mainframe gateway solutions are composed of two primary software components_gateway software that runs on a gateway server to emulate an IBM 3x74 controller, and IBM terminal emulation software that runs on a Macintosh workstation. The gateway software passes mainframe screen **updates** and other information from its host connection_Token-Ring, SDLC or coax_out over an AppleTalk network to the Macintosh that is running the emulation software. None support X.25/QLLC (Qualified Logical Link Control, which supports SNA over X.25) or coax mux mainframe connections. The emulation software displays screen **updates** on the user's monitor and provides **file** transfer and printing functionality. When accessing a mainframe through the gateway, each user **establishes** a session_or logical unit (LU) in IBM parlance_with the mainframe. A single Macintosh can use more than one LU simultaneously. The gateway devices used by these vendors vary greatly , from a Macintosh or an IBM PC compatible to a proprietary RISC box. Specific host connection hardware for the gateway_coax, SDLC or Token- Ring_is available from each vendor. A user's normal mainframe connection setup, including all required LUs, is typically **stored** in a simple settings **document** . Mac users double-click on the **document** to load the emulation software. Each product supports both dedicated and pooled LUs. A pool is a set of LUs accessed on a first-come, first- served basis, which allows more efficient sharing of the often restricted set of LUs available on the host, without dedicating a specific LU to each user. Users can be required to enter passwords to access pools of LUs, but there is no link to existing user names and passwords already set up in AppleShare. This means the user has to remember another password, and the administrator has to set up and maintain another security environment. Many typical customer requirements are supported in all these products from multiple terminal types and host connection options, to HLLAPI interfaces and session pooling. Figure 4 on page 34 lists the typical requirements and features supported by the gateway products. We tested each product in a configuration consisting of a Token-Ring link to a 3174 controller to a VM/ CMS 4381 IBM mainframe. On the client side, a Mac IIsi was connected via Ethernet to the gateway. A Mac IIci was used for the Avatar and Apple gateways, and a Compaq 386N for the DCA gateway. Terminal screen painting performance was comparable between the products in our single-client lab testing. **File** transfer speeds using IBM's standard Send/Receive (IBM$ **FILE** ) on the host varied a

great deal. Our tests included uploading and downloading small and large **files** of Mac binary, general binary and simple text formats. Tests were conducted multiple times for each product and averaged. Apple, Tri-Data and DCA supported **file** transfer throughputs in our test configuration of 3 Kbytes to 4 Kbytes per second, with Apple as the leader. Avatar's gateway was much slower, achieving only a 0.4 Kb- per-second throughput. All of these speeds are slower than the 6- to 17-Kbytes-per-second speeds common for DOS PC gateways. Avatar's MacMainFrame Avatar's hardware platform is a Macintosh II. The gateway server software runs under MultiFinder, which allows the administrator to use any text editor to view the server log **file** while the server is running. Surprisingly, the Server Control **program** doesn't allow viewing of the server log. No remote administration is offered, although Mac-to-Mac remote-control software (at extra cost and effort) could be used to give a remote user access to the gateway. Avatar's is the only gateway to offer an administrator-configured time-out for inactive LUs on the gateway, which can free up connected but unused sessions for other users automatically. Avatar supports only password-level security for access to LUs, though a newly announced 4.0 software release promises to offer more security features. MacMainFrame competes in price with the lowest cost DCA MacIRMALAN system, and supports using a Mac SE as a gateway server platform, which may be well suited to low-end requirements. Apple's SNA*ps Apple's SNA*ps 3270 gateway hardware is a Macintosh II. The gateway software is downloaded onto Apple's intelligent host connection cards. Each card includes a Motorola 68000 processor and RAM to process the gateway application. Currently, this architecture has severe limitations in its Token Ring implementation, because the TokenTalk NB card supports only 500 Kb of onboard RAM, enough for only 14 concurrent host sessions. This on-board processing approach to the gateway cannot provide faster processing than a well-configured Mac IIcx. For most implementations, the gateway is already dedicated, so offloading the gateway process gains nothing. Apple is the only vendor supporting LU6.2/APPC connections through a gateway. LU6.2 supports peer-to-peer application **development** between IBM hosts and other devices, such as the desktop Macintosh microcomputer. On the other hand, Apple has not released printer emulation software yet, making it the only gateway that does not support printing. Apple also offers no security functionality at all in this initial version. And the product is, in many configurations, much more expensive than those of the other vendors, primarily because Apple is licensing the client software on a per-client basis. DCA's Gateways DCA offers two gateway products. MacIRMALAN supports only Macintosh clients, while IRMALAN/EP supports DOS, Windows and Macintosh clients on NetWare and NetBIOS networks. MacIRMALAN offers the same gateway and emulation features as IRMALAN/EP. However, IRMALAN/EP comes standard with only DOS support; Macintosh supports costs an additional $3,995. DCA offers the most wide-ranging cross-platform solution available today. DCA uses a PC-based gateway, and requires Farallon's PC PhoneNet Talk software for AppleTalk implementations. Farallon currently supports only IBM Token-Ring, some 3Com Ethernet, and DayStar LocalTalk adapter cards, but only one of these can support AppleTalk at one time. DCA's Mac client software has the unique feature of being able to connect to more than one gateway simultaneously, which in turn could offer connections to different hosts. DCA offers the most rigorous set of security options, including network address restrictions. Unfortunately, network address restrictions cannot be used on LocalTalk networks, since network addresses can be different each time a workstation boots up. On Token-Ring and Ethernet networks, the unique burned in addresses can be used to secure sessions to particular workstations effectively. Tri-Data's NetWay 2000 The NetWay 2000 is a proprietary SPARC processor device with no diskette drive or monitor. The Netway 2000 does not support any coax connections, but does support simultaneous connections to more than one host through its two RS 232 or V.35 ports and its Token-Ring NIC. No other single gateway supports multiple hosts simultaneously. To configure the device, a Macintosh on the network runs a **program** that downloads the NetWay's configuration over the network. All NetWays on the network can be configured from the same Macintosh. This Macintosh should be left on at all times running the monitor **program** ; and under MultiFinder if it's also being used for other

tasks. The fact that a NetWay gateway cannot come back online after being rebooted unless a Macintosh running the NetWay monitor is already online could be a serious problem if your network is large. On the other hand, a single centralized management system for many gateways is a good idea, particularly because it doesn't require going to the device itself to manage it. The NetWay 2000 is unique in offering the widest variety of simultaneous network connection options , including both Ethernet and Token-Ring NICs, two SDLC ports for host connections, and four LocalTalk connections. The NetWay also is unique in offering routing functionality between the AppleTalk interfaces. This feature can be turned on or off as required. This makes the Tri-Data appropriate for installations where routing is required and not already available. Tri-Data offers simultaneous support of both Mac and PC clients, but PC support is for Windows NetWare clients only, and not DOS character mode or other network operating systems. DCA is more flexible for cross-platform environments. When the full configuration of the required components is specified, the NetWay 2000 is very competitively priced. The NetWay 2000 supports only password-level security. Tri-Data also makes a less-expensive gateway called the NetWay 1000, but this supports only SDLC and only eight or 16 total sessions. Adding It Up Avatar is in some cases the least expensive gateway, but it is by far the slowest at **file** transfer. Its **file** transfer performance and lack of other unique features make it less attractive than other products. Nevertheless, if **file** transfer performance isn't a primary criteria, it can be a solid solution for smaller configurations. Apple's solutions are currently flawed in session support on Token-Ring, offer no printing or session security, though Apple does plan to offer additional functionality in these areas in the next version. SNA*ps costs significantly more than the other gateways. It is, however, the only game in town for APPC **development** . Apple is positioning this product as the future of Macintosh-to-SNA connectivity, but will get serious competition from the cross-platform approaches offered by DCA and Novell and even Tri-Data. An organization that needs Macs connected to SNA hosts is also the most likely to need PCs and Macs to coexist cooperatively. Between DCA and Tri-Data, the choices are more complex. DCA's MacIRMALAN solution is very cost-effective if you only need to support Macs, but Tri-Data offers AppleTalk routing support, all in a single vendor hardware and software solution. Tri-Data's management system architecture is both a blessing and a curse, depending on how much you trust it to work in less than optimal circumstances. On the other hand, DCA's PC-based implementation should not scare away the Mac-only shops. About the only thing required at the PC gateway is the initial configuration; after that everything can be done from a Mac. DCA also offers the wider variety of PC client solutions. _Bruce Robertson Editor's note: As we go to press, Avatar and Tri-Data have **agreed** to merge into a single company called Avatar, but their respective product lines for the moment remain unaffected. REVIEWED One-Stop Shopping For NovellNetwork Support The first edition of Novell's Network Support Encyclopedia Professional Volume ( NSEPV) CD-ROM is impressive. Among other things, it contains materials from the NetWire forums on CompuServe (including downloadable **files** ), manuals for many Novell software and hardware products, marketing information on virtually all Novell products, and a promising troubleshooting **section** . All of these are available in full text, and full-text searches can be done on any **section** of NSEPV or across the entire CD-ROM information base. Dealers and other vendors can find a wealth of material in NSEPV. The product also has much to offer network managers and those who work for them. NSEPV runs under Folio Corp.'s Folio PreVIEWS, the same full-text search engine that supports the help system that comes with NetWare. NSEPV's main menu includes the following major topic areas: technical information; **files** , patches and fixes; troubleshooting; topics; Novell product manuals; Novell corporate information; and Novell product information. The technical information **section** in the first release of NSEPV includes over 2,200 of the company's technical bulletins and a well-organized **section** on Novell compatibility tests. Also part of this **section** are technical discussions relating to various Novell products; the NetWare application notes dating back to June 1990; and articles from Novell's Professional **Development** Series as available on CompuServe, all of which can be downloaded from the

CD ROM. The **files** , patches and fixes **section** includes most of the downloadable **files** that can be found on NetWire through CompuServe. Of course, there is a delay in getting **files** onto the CD-ROM, so the very latest downloads are not available. We received the NSEPV disk in early July; the latest available downloads were from mid-May. Troubleshooting Help The troubleshooting **section** is designed to help fix network problems. The first release of NSEPV covers two topics: printing diagnostics and print server diagnostics. Under printing diagnostics is a list of problem topics such as "slow or unresponsive network printer." If this topic is selected, a list pops up of things to check relating to PostScript printers, NetWare remote printers, DOS printing, queue **files** and printer port modes. Selecting one of these brings up some suggested troubleshooting activities. Though it is currently somewhat limited, this **section** could become the most valuable part of the disk as it is **updated** and enhanced. The topics **section** organizes information on the CD-ROM by categories. Sub topics include **file** service, hardware, print service, protocols, utilities and workstations. Within each topic are sets of sub-topics. Some of the sub-topics under hardware include board, memory, CPU, UPS and hub. Product manuals are available for NetWare releases from v2.0a through 3.11. While online NetWare manuals have been shipped with NetWare for the past few years, this is the first time that any of the older manuals have been available online. The NSEPV also includes manuals for Novell's 3270 communications, LANalyzer, TCP/IP and MHS v1.0. The corporate information **section** includes a trade show calendar, training course offerings and schedules, press information, data on Novell Users International, reseller bulletins, and phone numbers for Novell's major offices in the United States. Under product information NSEPV users can find an electronic catalog of Novell's various product offerings. NSEPV ran well under Online Products Corp.'s Opti-Net software for networking CD -ROMs. The Folio front end performed flawlessly, making it easy to find information either by using the product's hypertext capability or by doing full-text searches on any **section** or all of the CD-ROM. Useful Information We found a good deal of useful information that we might never have uncovered by any other means. In addition to the Professional Volume, NSEPV comes in a Standard Volume edition. This volume does not include most of the material on CompuServe, the troubleshooting **section** , and manuals other than those for NetWare 2.2 and 3.11. Novell also expects that third-party vendors will **produce** their own additions to the NSEPV on **separate** media. A book publisher might, for example, offer its Novell-related publications for use as part of NSEPV. _Barry Gerber Network Support Encyclopedia Prices: Professional Volume:$1,395 first year (12 monthly **updates** ) $1,195 for each year thereafter Standard Volume: $595 first year (12 monthly **updates** ) $495 for each year thereafter Novell, Inc. 122 East 1700 South Provo, UT 84606 (800) NETWARE Circle reader service 324

TEXT:

... worthwhile network operating system in environments with both Unix and LAN Manager clients, particularly because it incorporates **file** and print service support for Macintosh and Unix clients, which Microsoft's OS/2 LAN Manager version...

...NetBEUI and TCP/IP), integrated services (Mail, SNA, TCP/IP services), and multiple-client OS support for **file** and print service (DOS, Windows, OS/2, Macintosh and Unix). In offering OSI protocols for DOS and...

...exist with the current version, this network operating system could be ready to reach for those stars. **File** Sharing As with any LAN Manager implementation, DOS and OS/2 users are supported for **file** service on StarGROUP. Support for Macintosh and Unix clients on the server is also included. DOS and OS/2 clients can see and use Macintosh **files** , and vice versa. Network managers can set up shared directories on the **file** server, which are really just Unix subdirectories that may be published for or shared by each kind...

...A DOS client, for example, could connect to a shared area with the NET USE command, and **establish** a drive letter that points to that directory

structure. These shared areas can be **separate** for each client type, or the network manager can publish the same subdirectory for all clients, **establishing** a single subdirectory structure in which all supported clients can share data. The network manager can add...

...are fixed partitions on the disk. StarGROUP does not help the user much in the area of **file** name transparency between client environments. Unix supports upper-case characters (but not spaces) in **file** names, so OS/2 and Mac users aren't compromised much in saving **files** . But for a DOS user to see an OS/2 or Mac or Unix **file** , it must either be named in the typical 8.3 format of DOS **files** , or the DOS user must manually rename it. The **file** name also must be all lower case; even though a DOS user always sees upper-case names, **files** from DOS clients are **stored** with lower-case names on the StarGROUP/ Unix server. If a DOS user wants to access a Mac **file** whose name included spaces and upper-case characters or a long **file** name, the DOS user must first run the uren command to permanently change the Mac **file** name to a DOS 8.3 name. After this, the DOS client can see the **file** with normal DOS applications or the DIR command. Otherwise the DOS user can only view the **files** using the udir command, which displays a Unix ls -al style listing. NetWare does this more elegantly, saving all **files** in native names and offering automatic unique truncation of non-native names to the DOS format. DOS and OS/2 clients should use NET **COPY** to **copy** Mac **files** , instead of a simple **COPY** ; this moves the resource fork information associated with the Mac **file** . Resource fork information includes the icon and the **document** creator code. Novell has a similar utility built into its NCOPY utility. DOS clients can also run the ud command to **convert** text **files** from Unix or Mac formats to DOS formats. This step is not required when applications used on the Mac and PC (Microsoft Excel, for example) can use the same binary data **file** format. StarGROUP also supports Microsoft Windows 3.0 running in all modes on DOS clients, although setup when using StarGROUP's extended and expanded memory versions of the client software is not simple, and **documentation** is non existent. The README **file** on the required 3.41 client **update** disk does not come close to providing adequate information about configurating StarGROUP with Windows. AT&T support referred us to Microsoft to talk about Windows **questions** , but a call into Microsoft's technical support for Windows indicated that there is almost no information...
...supposed to be close partners for LAN Manager, no one has told their tech support departments.) Unix **File** Sharing Unix workstations can share disk volumes on the StarGROUP server via NFS or RFS. As described...

...and DOS users. The StarGROUP server can also mount other remote RFS or NFS drives, but despite **documentation** claims to the contrary, we were unable to get these remote **file** systems to be shared with native DOS or Mac clients. Security for NFS clients is different from...user are not the ones set in LAN Manager. If a Unix user wants to access a **file** on a shared directory, the Unix administrator must give him or her access to it with normal...

...directly from the StarGROUP server, since StarGROUP does not support a LocalTalk NIC in the server. A **separate** third-party LocalTalk-to-Ethernet AppleTalk router is required to gain access to the LocalTalk network and...

...only from the Unix console and from DOS Enhanced and OS/2 workstations. Though StarGROUP does offer **file** service and print service to Mac clients, messaging is not supported, nor is the ability to execute...

...from DOS or OS/2 workstations. Figure 1 on page 23 provides a rundown of printer and **file** service access for StarGROUP clients. Beyond **File** and Print Services PCs can also use the included Kermit terminal emulation over any supported StarGROUP protocol...and increasingly so with Novell's other software products), these services can be supported simultaneously on the **server** platform. With these **additional** services packages, however, StarGROUP supports only DOS, and in some cases OS/2, but not the Macintosh...

...feature of StarGROUP is that the server itself can process DOS tasks with the Unix Simul-Task **program** . In conjunction with the StarGROUP Simul-Task Client Interface **Program** , a DOS virtual machine can access network resources like any DOS client. This feature has many possible uses. For example, Unix could be set up to execute a DOS batch **file** on a scheduled basis to perform required tasks on the LAN Manager server or out across the network without dedicating a **separate** DOS machine to this. LANs, Protocols and NICs AT&T has taken the intelligent approach that the ...

...client is required for centralized logon support and administration functions. In addition, with the TCP/ IP Support **Program** offering, DOS clients on Ethernet can access these same LAN Manager services over a TCP/IP transport...
...to provide network **segmentation** . OSI routing is available to WAN interfaces, but not between LANs in a single StarGROUP server. Therefore ...

...hard reboot of the server. Hard reboots of a Unix server are not easy on the Unix **file** systems. This lack of support makes migrating to StarGROUP ...in trust and in-house testing. We strongly recommend that AT&T work to expand its certification **programs** to include third-party hardware. This lack of a certification **program** is indicative of a company that is trying to sell its own hardware at the expense of...

...telnet into the server can access the full-screen SYSADM menu utility, which is required for many **additional** **server** configuration and maintenance tasks. The server console SYSADM utility provides only the more difficult command line NET...

...and asked that we use the Unix vi editor or other Unix utilities to directly modify Unix **files** . If Unix users are supported on a StarGROUP server, Unix expertise is a requirement. Despite the **documentation** 's insistence to the contrary, Macintosh and DOS users cannot share a single user ID in both...
...will enhance the StarGROUP implementation in LAN Manager 2.0, including a domain name service support and **replication** , as well as enhanced API support and security functionality. In the domain scheme, multiple servers can be...

...StarGROUP TCP/IP Software, v4.0: $495 StarGROUP NFS/RFS Network Package: $495 StarGROUP TCP/IP Support **Program** , v1.0 (includes FTP Software's DOS client protocol stack, telnet and ftp applications, and NetBIOS) 8...

...525 AT& T Simul-Task Release 3.0 for the server: $695 StarGROUP Simul-Task Client Interface **Program** v3.4: $449 StarGROUP Server for Macintosh, v3.4 8 users: $795 Unlimited users: $1,295 AT...

...elegantly and using, wherever possible, the native protocol to a client, such as TCP for Unix machines. **File** names are **converted** automatically so that different clients can view **file** names, even names that don't fit each client's conventions. NetWare also has the widest support for adapters (both workstation- and server-based), platforms and peripherals. In terms of **file** service performance, NetWare has consistently excelled over its competition ...release of LAN Manager 2.0 are not sufficiently different from LAN Manager to have warranted a **separate** review of LAN Server. Certainly, this will not be the case a year from now, as both...

...and directory services are nowhere as sophisticated as Banyan's. And Microsoft offers many features such as **file** **replication** , peer services and remote **program** execution that are still missing from NetWare 3.11. But on balance, NetWare 3.11 is the...

...LaserJets Get a Network Connection Network analysts know

Hewlett-Packard's printer division for its ability to **produce** excellent products at fair prices, even at the expense of making other parts of its own product...

...Printer," April 1991, page 27). This new attachment bypasses the parallel port, using instead a faster alternate **I / O** bus that connects directly to a network adapter. Like the IIISi LAN connection, the Network Printer Interface...

...at 10 MHz as the brains for the adapter. The card slides into the LaserJet's optional **I / O** slot. Network interfaces are available for Token-Ring, thin Ethernet or 10BASE-T. Queue **requester** software for supported networks (Novell NetWare, 3Com 3+Open, Microsoft LAN Manager and IBM LAN Server) is built into the device's ROM. The device also contains a status switch, which **queries** the state of the adapter and prints a status page in five languages. Connects LaserJets The Network...

...Interface on a network with a Novell NetWare 2.15 25-MHz 386 4-Mbps token ring **file** server. In the tests below, our server only passed the queue's packets along to a printby printing a 677,774-byte PCL **image** and timing the results with a stopwatch (see Figure 3). We then spooled the same job to...

...running Novell's print server software PSERVER, an alternative employed at many sites. The NPI printed the **file** 36 percent faster than a dedicated print **server** , for only the **additional** cost of the NPI for the printer...

...macro facilities. The vendors all provide special IBM character screen fonts to be loaded into the system **file** with the Font/DA Mover. Concurrent sessions and easy switching to other applications are not a problem...

...RAM in the Macintosh for the 600 Kb to 900 Kb that the drivers and the emulation **program** require. These products are more flexible than DOS gateway solutions because of their Macintosh client's innate...

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...Bruce Robertson Editor's note: As we go to press, Avatar and Tri-Data have **agreed** to merge into a single company called Avatar, but their respective product lines for the moment remain...
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...system that comes with NetWare. NSEPV's main menu includes the following major topic areas: technical information; **files** , patches and fixes; troubleshooting; topics; Novell product manuals; Novell corporate information; and Novell product information. The technical information **section** in the first release of NSEPV includes over 2,200 of the company's technical bulletins and a well-organized **section** on Novell compatibility tests. Also part of this **section** are technical discussions relating to various Novell products; the NetWare application notes dating back to June 1990; and articles from Novell's Professional **Development** Series as available on CompuServe, all of which can be downloaded from the CD ROM. The **files** , patches and fixes **section** includes most of the downloadable **files** that can be found on NetWire through CompuServe. Of course, there is a delay in getting **files** onto the CD-ROM, so the very latest downloads are not available. We received the NSEPV disk in early July; the latest available downloads were from mid-May. Troubleshooting Help The troubleshooting **section** is designed to help fix network problems. The first release of NSEPV covers two topics: printing · diagnostics...

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utilities and workstations. Within each topic are sets of sub-topics. Some ...

...includes manuals for Novell's 3270 communications, LANalyzer, TCP/IP and MHS v1.0. The corporate information **section** includes a trade show calendar, training course offerings and schedules, press information, data on Novell Users International...

...information either by using the product's hypertext capability or by doing full-text searches on any **section** or all of the CD-ROM. Useful Information We found a good deal of useful information that...

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**24/5,K/6 (Item 1 from file: 674)**
DIALOG(R)File 674:Computer News Fulltext


068252
**Alteon and Extreme on Gigabit Ethernet vs. Fibre Channel**
**How do they stack up for storage area nets?**
Journal: Network World
Publication Date: August 17, 1998
Word Count: 1655 Line Count: 154

Text:
... vendors Alteon Networks, Extreme Networks and Packet Engines. Select responses are included below. For the "Packet size" **section** , StorageTek provided a lengthy explanation. After that, only a one-liner was provided stating the relative strengths or weaknesses of each technology in each category. Responses from the GE vendors follow in each **section** .Packet sizeFibre Channel: The packet data size for GE is 1.5K bytes. FC assures delivery so that blocks can be chained together to **create** up to a 128M byte transfer in a single **I / O** by "sequencing" up to 64,000 2K bit frames per packet. This could be attempted with GE...

... handles 1.5K byte blocks and FC enables up to 128M bytes, making it ideal for large **file** transfers associated today with normal **backup** and restore.Extreme Networks: First, the session layer of any protocol (e.g. - TCP) guarantees delivery. The...

... of 8 bytes, header of 14 bytes and 4-byte trailer (FCS), which is 26 Bytes total **divided** by a 1,500-byte payload. Packet Engines: Ethernet does have a smaller frame size than FC...

... You can take a look at any of the Bradner type tests to verify this.Protocol SupportFC: **I / O** and network protocols today: SCSI, IP, HIPPI, ESCONGE: Network protocol onlyAlteon: Notice that most of the protocols...

...environments you either run a channel protocol or a networking protocol, not both at the same time. **Device** management is **another** big problem. Like in HIPPI, ARP is not very well supported in FC environments and this creates...

... can be seamlessly integrated into an enterprise network, rather than being an island unto itself. Additionally, FC **file** transport protocols are vendor "proprietary". What is the **file** transport protocol or standard used between systems of different vendors? Although FC may be a standard and allows single vendor solutions, the interoperability of different systems is **questionable** . Will an FC implementation from SGI work with one from Sun? This is really a work around...data link as over a Fiber Channel data link.Biggest StrengthFC: Flexibility, performance, effective bandwidth useGE: "Ethernet" **imageExtreme** Networks:I would hardly call FC flexible. How would you connect a FC SAN to the rest...

**24/5,K/7 (Item 2 from file: 674)**
DIALOG(R)File 674:Computer News Fulltext


062778
**Sybase tackles an IS balancing act**
**Buyer's Guide: Product Review, Adaptive Server 11.5**
**Client/Server Labs test shows DBMS handles quirky workloads**
Byline: Steve Antonoff
Journal: Computerworld Page Number: 88
Publication Date: October 27, 1997
Word Count: 1501 Line Count: 137
Section Heading: Buyer's Guide
Caption(s): screens: SQL Central; Adaptive Server 11.5's system monitor

Text:
...5, Sybase, Inc. attempts to address the growing problem of multiple and often unpredictable loads on a **database** server. Many of you have been there: The sales force needs rapid response time for looking up...

... to wait forever for data about what's happening right now - not last night or yesterday. Information **replication** - **duplicating** data on multiple servers - has been the accepted solution. While still supporting this, Sybase Adaptive Server attempts to provide an alternative: a server that can **adjust** itself to the changing environment. Add parallel processing and a set of well-thought-out and well-implemented graphical tools, and you have a system that's worth consideration when making **database** management system decisions. New Features Release 11.5 of Sybase's flagship product - previously known as Sybase...

... of what's actually going on in the DBMS and allocates CPU resources to satisfy current user **demands** . Users, procedures or applications can be assigned to Execution Classes via the Sybase Central utility. Each Execution...

... has a priority - low, medium or high - and an Engine Group. Sybase Central is also used to **create** Engine Groups. Under Windows NT, Engine Groups loosely couple to CPUs in a multiple-CPU environment so that, basically, an Engine Group defines how many threads can be used by an **object** in the Execution Class. LPM allows, for example, anyone designated as a manager - and in a high Execution Class - to run a **program** with a higher priority than a nonmanager **requesting** the same information. Because Adaptive Server allocates CPU resources dynamically, there's a better likelihood that all...

... the opposite end of the spectrum from the varied load situation is the problem of the huge **query** that must execute but takes an enormous amount of time. Adaptive Server addresses that by providing parallel processing. A single, huge **query** can be broken up into parallel processes and **divided** among multiple CPUs. That would require that the application be written to make use of parallel processing...

... important feature of Adaptive Server 11.5 is Recovery Fault Isolation. That lets the DBMS limit hardware **I / O** problems to a page rather than to an entire table or **database** . Once a bad page is marked, the rest of the

**database** continues to be available. Of course, data in the bad page must be recovered somehow, and, depending...

... utility - Sybase's SQL command graphical user interface (GUI). Or it could be a major undertaking using **backups** . Modern disk technology - RAID, mirroring and so forth - can insulate the DBMS from **I / O** failures. But even with such technology in place, knowing that only a small portion of the **database** would be lost to an **I / O** error should let **database** administrators - and chief information officers - sleep better. During evaluation of Adaptive Server, parallel processing and Recovery Fault Isolation weren't used at all. Sybase Central was used to **establish** LPM **objects** but, in the limited scope of this evaluation, the real-world effects of LPM weren't measured. Installation and Tools Installing Adaptive Server 11.5 from CD-ROM was simple. The installation **program** allowed the selection of a target drive, and most **files** were installed there. After selecting the D: drive, specifying a new directory and telling the installation **program** to install everything, the installation **program** advised that 81M bytes of disk space would be required. The actual installation directory occupied more than 110M bytes, but that included the master **database** - 30M bytes - which wasn't included in the size estimate. The installation **program** didn't display how much was going to be installed to the Windows drive if Adaptive **Server** is installed on **another** drive - some Dynamic Link Libraries (DLL) go into the Windows System32 directory. It appears that about 1M byte of DLLs and help **files** are installed into System32. The installation on a single-CPU, 133-MHz Pentium from a local integrated...

...to start automatically, which allows for a recovery by rebooting in case the installation fails or the **files** are corrupted during installation. It would be nice if the installation screen advised that the service is installed but won't start automatically without user intervention. Performance and User Interaction Using a "gold" premaster **copy** of Adaptive Server 11.5, we attempted to load a "standard" **database** and evaluate behavior and functionality of the base product and some of the included utilities. The first step toward observing performance is to build a **database** . Using scripts written for Microsoft SQL Server that build Client/Server Labs' standard online transaction processing (OLTP) **database** - which is a subset of the Transaction Processing Council OLTP benchmark **database** - we built a family of tables. Microsoft SQL Server and Sybase Adaptive Server share a common heritage...Server expected. The first was a setting, the second a disagreement in the parameters specified for a **stored** procedure. Adaptive Server installed itself with a maximum of 10 devices. That seems rather low but was...

...configure **stored** procedure. Increasing the limit to 50 devices allowed the script to **create** all the **database** devices. Then a discrepancy between the Microsoft sp...

...addsegment and the Sybase **stored** procedure of the same name appeared: Sybase requires an extra parameter - **database** name - that Microsoft doesn't. That was easy to fix, and then the tables were created. One of the strengths of Adaptive Server helped us resolve the **stored** procedure problem. SQL Advantage is Sybase's GUI **program** that allows interactive **queries** . It includes point-and-click access to all defined **stored** procedures. When a procedure is selected, the required parameters are displayed, and the user can enter data for each parameter, then execute the **stored** procedure. The utility also allows pasting of table names, columns, views and so forth into SQL statements...
... SQL Advantage. Next came the attempt to load the data. A command-line utility called the Bulk **Copy Program** (BCP) is normally used to load large amounts of data into a Sybase **database** . However, all attempts to run BCP as it was installed from the CD-ROM resulted in an...

... the production CD-ROM. BCP did run, but additional changes were required to the batch and format **files** that we used to load the data. Again, the changes were minor - things such as replacing slashes with dashes in the batch **file** and changing the version number in the format

**files** . The delays in Sybase being able to resolve scripting and data loading issues left insufficient time to run a full benchmark. But several **queries** were executed, and all seemed to perform quite adequately. With eight **database** engines enabled on the system, all eight CPUs appeared to experience approximately equal loads when a full...

**24/5,K/8 (Item 3 from file: 674)**
DIALOG(R)File 674:Computer News Fulltext


045001
**Portrait of an ATM switch**
**Feature**
**Most fall short of meeting key criteria for wide-area enterprise use, but a few are how on the trail.**
Byline: David Axner
Journal: Network World Page Number: 65
Publication Date: June 19, 1995
Word Count: 2334 Line Count: 217
Section Heading: Feature Articles

Text:
... signaling for thousands of switched virtual circuits per second. They should be robust enough to service heavy **demands** during peak traffic periods, effectively utilize bandwidth and minimize traffic congestion. They must be able to provide...

... traffic - Systems Network Architecture, X.25, frame relay and multiprotocol LAN data, as well as video, voice, **images** and multimedia. System availability near 100% is an absolute requirement, along with a net management system able...
... s one area where most vendors fall short. The Cascade 500 boasts the highest port density per **I / O** module among the four switches compared in the accompanying table. Raw Asynchronous Transfer Mode switch capacity is ...

... supports as many as 16,000 virtual connections (also known as Virtual Paths or Virtual Channels) per **I / O** module. Since the switch can accommodate up to 14 **I / O** modules in a single chassis, it can support as many as 224,000 virtual connections per switch...

... not so critical, such as video playback, training tapes and video mail messages. Class D traffic is **split** into two classes: unspecified bit rate (UBR) and available bit rate (ABR). These classes are for bursty...

... creates an administrative nightmare and probably will never be operationally employed. The better approach is to provide **programmable** QoS classes to allow users or service providers to **establish** a specific QoS for each type of service. The Cascade 500 switch implements scalable and configurable QoS...

... cells - 16K per output port times eight output ports - which is substantial compared with the competition. The **second** stage of output **buffering** resides in the **I / O** cards and is ...configured similar to the first stage, using quad plane buffering. Cells are read out of the planes **according** to a weighted round-robin scheduler algorithm, where a plane is serviced **according** to its QoS priority and whether there are additional cells in that plane. Traffic class and QoS...

... buffering on the switch fabric. Each output port has a 16,000-cell buffer, which can be **divided** into any number of **segments** of any length to support different QoS classes. Secondary buffering is provided on each **I / O** interface card and can also be **divided** into a number of **segments** of varying sizes. GDC's APEX DV-2 switch likewise implements priority queuing using switch **I / O** buffers. High- and low-priority buffers are provided for each input and output port. The two input...

... blocking can occur when multiple cell inputs are destined for the same output path. StrataCom's BPX **divides** the standard four classes of service into 32 subclasses, nine of which have been supported to date...

... QoS parameters for each service class. StrataCom implements OptiClass using a multisegment buffer on each of its **I / O** cards. Buffer capacity is 2M bytes, which **stores** as many as 24,000 cells. The buffer can contain up to 1,000 **segments** , with one per connection. With this technique, delay-sensitive traffic, such as voice, is handled by small **segments** to limit delay, while large **segments** handle data that is not sensitive to delay, such as E-mail. Relieving congestion Closely related to...

... is a congestion avoidance measure. It reduces congestion in the network by accepting or rejecting a connection **request** at call setup time. The decision is based on two conditions: the current utilization level of the network and the traffic performance parameters **requested** by the call's QoS. If the QoS parameters exceed the available network resources, the call is class. It is vital that the **requested** QoS for a call is provided end to end through the network by the routing algorithm. Two...

... an enhanced version of the Open Shortest Path First standard for end-to-end routing. The algorithm **establishes** a network path based on a virtual circuit's QoS requirements, including bandwidth, end-to-end delay ...

...path will meet QoS requirements. End-to-end delay values are measured at link initialization. Call setup **requests** can specify the minimum delay allowed and their own CDV and CLR. An administrative path control lets...

... on bandwidth or delay metrics. Interswitch trunk circuits can be dedicated to specific end-user ports to **create** multiple private nets out of a single net of Cascade 500 switches. VNN reroutes traffic (PVCs, permanent...

**24/5,K/9 (Item 4 from file: 674)**


042166
**Server searching: a game of break the bottleneck**
**Buyers Guide**
Byline: Tony Croes and Josh Penrod
Journal: Network World Page Number: 33
Publication Date: January 30, 1995
Word Count: 4491 Line Count: 423
Section Heading: Feature Articles
Caption(s): Graphic, Segmented buses, Susan Slater, Graphic, Reader views on servers, Susan Slater

Text:
... quite a few of them. Fierce competition forced vendors to make the personal computer-based technologies originally **developed** for high-end servers available on lower end models and to introduce sophisticated software integration and management...

... Complex Instruction Set Computing (CISC) or Reduced Instruction Set Computing (RISC) chips and support industry-standard PC **I / O** buses, such as Extended Industry Standard Architecture (EISA), Micro Channel Architecture and Peripheral Component Interconnect (PCI). Additionally...
... how an application stresses a server will let you focus on the type of bottlenecks - CPU, bus **I / O** , disk **I / O** or network **I / O** that are inherent in products using traditional PC designs - the server must smash. Even with all the...

... top by technology alone. These companies stand behind their products

with very strong consulting, service and support **programs** . SERVERS GALORE At times, it seems vendors of every type of computing system have attached the server...

... error checking and correcting (ECC) memory, which maintains the integrity of data in random-access memory and **stored** on disk; components that can be swapped without bringing down the server; intelligent drive controllers; and redundant...

...4,000 and $16,000. These servers typically have large storage and memory capacities, as well as **segmented** bus architectures. Support for multiprocessing, ECC memory and other fault-tolerant features often cost more. At the...

... of basic PC server technology. Prices range from $2,000 to $4,000. Products in each market **segment** are being outfitted with technology to overcome the four common bottlenecks. he first bottleneck affects CPU performance...

... than main memory. Most CPUs have some form of cache memory built-in - called a Level 1 **cache** . The **additional** **cache** memories that engineers place outside the CPU are known as Level 2 and Level 3. Even at ... intensive tasks. Here are explanations of some of the cache designs you may encounter: Write-through cache **stores** **copies** of instructions or data found in main memory for quicker access. The CPU reads the cache memory rather than main memory. When an instruction or piece of data **stored** in cache has gone unread for a specified amount of time, it is overwritten with a more...

... uses write-back cache to gain a 5% performance improvement over write-through cache. Direct-mapped cache **stores** data from memory in a one-to-one relationship. That is, a single location in memory can...

... to implement a bus-snooping protocol into their cache designs. Snooping enables a CPU to access data **stored** in the **cache** of **another** processor when a check of its own cache fails to turn up needed data. An **additional** technique, called **cache** snarfing, lets a memory read operation **update** multiple external caches. This technique - also known as a simultaneous fill - can result in performance improvements of...

... servers as vendors try to differentiate their products. When an application is CPU-intensive, there is no **substitute** for the software vendors experience. Lotus **Development** Corp.'s Notes is an example of a notoriously CPU-intensive application. Notes is characterized by periods...

... improperly configured servers, usage spikes can even be caused by user actions such as reindexing a Notes **database** so it can be viewed differently. Vendor expertise in scheduling indexing and **replication** , for example, can make a significant performance difference. ache systems are designed to keep the CPU supplied with instructions and data by managing access to main memory. However, bus mastering **I / O** devices also contend for access to main memory, and they run at a much slower rate than the CPU. Therefore, CPU-to-memory operations should take precedence over **I / O** -to-memory operations, but not at the expense of interrupting these **I / O** operations. This is why most high-performance servers are engineered to let the CPU and **I / O** devices simultaneously access main memory in what is known as maximizing concurrency, or minimizing contention. Maximizing concurrency...

... between high-speed system buses such as the processor/cache-to-memory bus, the processor/cache-to- **I / O** bus and the **I / O** -to-memory bus. These buffers capture data reads and writes between buses to prevent one device, such as a CPU or **I / O** card, from waiting for another to finish. For example, buffers between the processor/cache bus and the **I / O** bus capture CPU writes to **I / O** bus devices. Once the CPU writes to these buffers, it is then free to continue processing tasks...

... can happen between any of the system buses, letting them operate independently. Vendors use these buffers in **segmented** bus architectures that can segregate different devices on various buses (see graphic, page 34). For example, HP...

... devices directly on a PCI or proprietary system bus. Tricord requires transfers intended for either memory or I / O devices to cross its proprietary PowerBus instead of using **separate** paths between the CPU and memory. Interestingly, Zenith chose to implement dual data paths of 256M byte/sec each between CPUs as well as between the memory and I / O buses. Compaq, on the other hand, chose a single 533M byte/sec bus between CPU and memory in its TriFlex/PCI architecture. Server vendors will continue to enhance these **segmented** bus architectures - also known as **split** bus architectures - and improve the buffering designs in order to maximize concurrency. Intel's Multiprocessing Specification (MP...
... including AST Computer, Inc., Compaq, HP and Tricord, are doing it already. t the risk of oversimplification, **database** management systems are traditionally bound by the performance of the processor and disk subsystem. Once the CPU-to-memory system and I / O bus are operating at peak performance, the bottleneck shifts a little further along the food chain - usually to a disk or network port. Disk I / O bottlenecks are encountered by such applications as high-volume transaction processing that moves many small transactions between the CPU and disks, and decision-support **databases** that move many **records** between the CPU and disks. In these cases, performance is affected by disk speed, the number of ...

... marginally faster than the smaller capacity drives. The results of empirical testing by Compaq's Systems Division **back up** this contention (see graphic). Almost without exception, Fast SCSI-2 is the bus of choice for server...

... better performance. However, even with multiple drives, there are a number of other ways to improve disk I / O performance. Multichannel bus mastering intelligent drive array controllers - some vendors call them I / O processors - have onboard processors and memory that allow both CPU-to-memory and disk-to-memory transactions...
... room for differentiation among disk array controllers from different vendors. Tricord, for example, contends its use of I / O processors attached directly to the system bus instead of an I / O bus improves performance as more drives are added. Vendors also will attempt to differentiate themselves with functional multiprocessing, in which certain processors are dedicated to serving specific tasks such as disk I / O . Don't be fooled, though. Almost all of the intelligent array controllers have high-performance processors on...

... controllers will become the norm for all servers. However, look for fault-tolerant features such as battery **backups** and posted write-back cache to remain differentiating features. hen data from the CPU is destined for...

... can cause a slightly different bottleneck and limit the number of users that can simultaneously make server **requests** . In applications where the net is the primary bottleneck - such as **file** and print services, video servers and imaging systems - the trend is to use very high-performance, low... Ethernet controller. However, in environments where CPU utilization is an issue, there is a point where placing **additional** NICs in the **server** yields diminishing returns due to the overhead associated with routing and servicing the NIC. As a rule...
... this threshold occurs when more than three NICs are placed in a single server. As with disk I / O , server vendors will continue to enhance the multichannel bus mastering controllers and make this technology prevalent throughout...

... errors - the most common type. When there are memory errors that exceed a single bit, these servers **generate** a nonmaskable interrupt and halt processing. Vendors such as Compaq use advanced ECC memory to detect and...

```
Set     Items   Description
S1    1161356   CREATE OR GENERATE? OR PRODUCE? OR DEVELOP? OR ESTABLISH?
S2     802441   MIRROR OR BACKUP OR BACK()UP OR COPY OR COPIES OR STORE? OR
              STORED OR STORING OR SUBSTITUT? OR DUPLICAT? OR REPLICAT? OR
              ARCHIV?
S3    1300698   SECOND OR 2ND OR ADDITIONAL OR ANOTHER
S4    1192366   DEVICE? OR REPOSITORY? OR MEMORY OR STORAGE OR BUFFER? OR -
              CACHE OR REGISTER OR NODE? OR HOST? OR SERVER?
S5     188583   (OBJECT? OR FILE? OR DOCUMENT? OR DATABASE? OR DATA()BASE?
              OR PROGRAM? OR RECORD? OR REPORT? OR IMAGE?)(3N)(DEVICE? OR R-
              EPOSITORY? OR MEMORY OR STORAGE OR BUFFER? OR CACHE OR REGIST-
              ER OR NODE? OR HOST? OR SERVER?)
S6      75864   (RESYNC? OR ADJUST? OR SYNCHRONI? OR SYNC OR UPDATE? OR CO-
              NFORM? OR CONVERT? OR AGREE?)(3N)(OBJECT? OR FILE? OR DOCUMEN-
              T? OR DATABASE? OR DATA()BASE? OR PROGRAM? OR RECORD? OR REPO-
              RT? OR IMAGE?)
S7     118306   INPUT()OUTPUT OR I()O OR IN()PUT OR OUT()PUT
S8    1643482   REQUEST? OR QUER? OR QUESTION? OR INQUIR? OR DEMAND?
S9        594   (UPDATE? OR UP()DATE? OR CONVERT? OR ADJUST? OR BACK()UP? -
              OR BACKUP? OR RECONCIL?)(3N)(TIMESTAMP OR TIME()STAMP)
S10      1350   (COMPARE? OR COMPARING OR MATCH? OR CONNECT? OR ASSOCIAT? -
              OR CORRELAT? OR VALIDAT? OR VERIFY?)(3N)(TIMESTAMP OR TIME()S-
              TAMP)
S11     74784   S1 (5N) S2
S12      1419   S11 (10N) (S3 (5N) S4)
S13     72819   (PARTITION OR SPLIT? OR DIVIDE? OR SECTION? OR SEPARATE? OR
              PARSE OR PARSING)(3N)(OBJECT? OR FILE? OR DOCUMENT? OR DATAB-
              ASE? OR DATE()BASE? OR PROGRAM? OR RECORD? OR REPORT? OR IMAG-
              E?)
S14      2429   S13 (10N) S6
S15         6   S11 (S) S12 (S) S14
S16      6078   S7 (3N) (OBJECT? OR FILE? OR DOCUMENT OR DATABASE? OR DATA-
              ()BASE? OR PROGRAM? OR RECORD? OR REPORT? OR IMAGE?)
S17       861   S16 (S) S8
S18         6   S12 (S) S17
S19      1383   S11 (S) S12
S20         5   S19 (S) S17
S21         4   S12 (S) S9
S22         1   S12 (S) S10
S23      2471   S11 (10N) S5
S24       129   S23 (10N) (S3 (3N) S4)
S25         5   S24 (S) S9
S26         1   S24 (S) S10
S27         1   S7 (S) S9 (S) S10
S28        15   S15 OR S18 OR S20 OR S21 OR S22 OR S25 OR S26 OR S27
? show files
File 348:EUROPEAN PATENTS 1978-2004/Feb W04
         (c) 2004 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20040226,UT=20040219
         (c) 2004 WIPO/Univentio
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...for behaviors that will be supported by the application. In other This section addresses several frequently asked **questions** that more broadly apply to the physical implementation of component- and object-based solutions. The answers are...

**28/5,K/13 (Item 9 from file: 349)**
DIALOG(R)File 349:PCT FULLTEXT


00777012
**A SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR PROVIDING AN INTERFACE BETWEEN A FIRST SERVER AND A SECOND SERVER.**
**SYSTEME, PROCEDE ET ARTICLE MANUFACTURE DESTINES A UNE ARCHITECTURE DE COMMERCE ELECTRONIQUE BASEE SUR JAVA**
Patent Applicant/Assignee:
ACCENTURE LLP, 1661 Page Mill Road, Palo Alto, CA 94304, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
UNDERWOOD Roy A, 4436 Hearthmoor Court, Long Grove, IL 60047, US, US (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
HICKMAN Paul L (agent), Oppenheimer Wolff & Donnelly, LLP, 38th floor, 2029 Century Park East, Los Angeles, CA 90067-3024, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200109721 A2-A3 20010208 (WO 0109721)
Application: WO 2000US20561 20000728 (PCT/WO US0020561)
Priority Application: US 99364531 19990730
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Main International Patent Class: G06F-009/46
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 126924

English Abstract
A system, method and article of manufacture are provided for providing an interface between a first server and a second server with a proxy component situated therebetween. Initially, a request for a business object is identified by an application on the first server. The first server is then connected to the second server. Next, selection criteria from the first server is transmitted to the second server. In response to the selection criteria, the first server receives a first recordset and a second recordset from the second server. Business data is included in the first recordset and result codes are included in the second recordset. The first and second recordsets are mapped to the business object and the business object is sent to the application on the first server.

French Abstract
L'invention concerne un systeme, un procede et un article manufacture destines a fournir une interface entre un premier et un second serveurs

avec, entre les deux, un composant mandataire. A l'origine, une demande d'objet commercial est identifiee par une application sur le premier serveur, lequel est alors relie au second serveur. Puis, des criteres de selection sont transmis du premier au second serveurs. En reponse aux criteres de selection, le premier serveur recoit du second serveur un premier puis un second ensembles d'articles. Des donnees commerciales sont incluses dans le premier ensemble d'articles et des codes de resultats dans le second ensemble d'articles. Une correspondance est etablie entre les premier et second ensembles d'articles et l'objet commercial', lequel est envoye a l'application sur le premier serveur.

Legal Status (Type, Date, Text)
Publication 20010208 A2 Without international search report and to be republished upon receipt of that report.
Examination 20020321 Request for preliminary examination prior to end of 19th month from priority date
Search Rpt 20020510 Late publication of international search report
Republication 20020510 A3 With international search report.

Fulltext Availability:
Detailed Description

Detailed Description
... object is identified by an application on the first server. The first server is connected to
34
**SUBSTITUTE** SHEET (RULE 26)
the **second server** in operation 153. In operation 154, selection criteria from the first server is transmitted to the second...application developer objects to manage attribute values common to all persistable business objects (user id and last **update timestamp** ). In addition, the AFPLPersistableObj class represents the superclass of a persisted object. In order to persist a...

...the following methods.

Return the column names common to all persistable business objects (user id and last **update timestamp** ). The application develo er invokes this method from the p constructor method of a business object.,,,
Return attributes common to all Dersi(section)table busi ess objects (userid and last **update timestamp** ). The application devel. invokes this,method from-Ahe oPer getPersistedAttributes method of a -business' obj ect-,,.

Abstract...

...in -attribute is one of the attributes con-tmon to all persistable' business objects (user-Jd, andJastypdate **timestamp** ), **compare** ',.

the passed in value to the currently held attribute, value., The application. developer should also invoke the...State Tax Table", and then retrieves the tax rate for Illinois. Note that codes tables provide an **additional**

degree of flexibility. If the tax rates changes, the data simply needs to be updated; no application...MTS installs
Service> Oracle 7.3
compatible utility
Ex. TestOraclexaConfig.exe -URetaUser -PRetaUser - by default.

SRetal
266
**SUBSTITUTE** SHEET (RULE 26)
**Create** Architecture and Application DSN's (Data Source Names). This process sets
up an ODBC
Run the 32Bit...

...within the Tools project of
SourceSafe.

Extract all files (use folder names) to C:
WinNT
Java.
267
**SUBSTITUTE** SHEET (RULE 26)
**Create** System Environment Variables This variable is
Define the following Environment Variable; used by the Java
CLASSPATH Virtual...

...ReTA
Apphcation;C.
Program are used by the
Files
Microsoft Visual Studio
VC)98
Include;c:
Program **development**
Files
I@M tools for
application and
PATH architecture
- PATFt- add G
orant
bM';C.
Program. Files...
...Reboot when
Run install for Service Pack 4 prompted
IF using this machinefor development. Install and Configure **Development** Software
268
**SUBSTITUTE** SHEET (RULE 26)
prompted.

If install detects an out of date version of IE 4.0 then...important to adhere to uppercase lettering for HTML tags.

However, some HTML editors, such as Microsoft FrontPage, **generate** lower-case HTML tages.

Since more HTML editing may probably be done through similar tools, it does...

```
Set     Items   Description
S1    3374289   CREATE OR GENERATE? OR PRODUCE? OR DEVELOP? OR ESTABLISH?
S2    1840026   MIRROR OR BACKUP OR BACK()UP OR COPY OR COPIES OR STORE? OR
             STORED OR STORING OR SUBSTITUT? OR DUPLICAT? OR REPLICAT? OR
            ARCHIV?
S3    2566211   SECOND OR 2ND OR ADDITIONAL OR ANOTHER
S4    6028996   DEVICE? OR REPOSITORY? OR MEMORY OR STORAGE OR BUFFER? OR -
            CACHE OR REGISTER OR NODE? OR HOST? OR SERVER?
S5    2893423   OBJECT? OR FILE? OR DOCUMENT? OR DATABASE? OR DATA()BASE? -
            OR PROGRAM? OR RECORD? OR REPORT? OR IMAGE?
S6    3786437   PARTITION OR SPLIT? OR DIVIDE? OR SECTION? OR SEGMENT? OR -
            SEPARATE? OR EXTRACT? OR PARSE OR PARSING
S7    3197426   ADJUST? OR SYNCHRONIZ? OR SYNCHRONIS? OR SYNC OR UPDATE? OR
             CONFORM? OR CONVERT? OR AGREE? OR ACCORD? OR BACK()UP? OR BA-
            CKUP? OR RECONCIL?
S8     273344   INPUT()OUTPUT OR I()O OR IN()PUT OR OUT()PUT
S9     263904   REQUEST? OR QUER? OR QUESTION? OR INQUIR? OR DEMAND?
S10       100   (UPDATE? OR UP()DATE? OR CONVERT? OR ADJUST? OR BACK()UP? -
            OR BACKUP? OR RECONCIL?)(3N)(TIMESTAMP OR TIME()STAMP)
S11       191   (COMPARE? OR COMPARING OR MATCH? OR CONNECT? OR ASSOCIAT? -
            OR CORRELAT? OR VALIDAT? OR VERIFY?)(3N)(TIMESTAMP OR TIME()S-
            TAMP)
S12    393693   S1 AND S2
S13    133944   S3 (3N) S4
S14    534221   S5 AND S6
S15   3197691   RESYNC? OR S7
S16    215037   S15 AND S5 AND S2
S17      7597   S8 AND S9 AND S5
S18      1280   S12 AND S13 AND S14
S19         4   S18 AND S15 AND S16 AND S17
S20       578   S18 AND S15 AND S16
S21         4   S18 AND S16 AND S17
S22         4   S18 AND S15 AND S17
S23        12   S10 AND S11
S24        16   S19 OR S21 OR S22 OR S23
File 347:JAPIO Oct 1976-2003/Oct(Updated 040202)
        (c) 2004 JPO & JAPIO
File 350:Derwent WPIX 1963-2004/UD,UM &UP=200413
        (c) 2004  Thomson Derwent
```

**24/5/1 (Item 1 from file: 347)**
DIALOG(R)File 347:JAPIO


07510638 **Image available**
DEVICE AND METHOD FOR DISPLAY OF ELECTRONIC MAP

PUB. NO.: 2003-004461 [JP 2003004461 A]
PUBLISHED: January 08, 2003 (20030108)
INVENTOR(s): SAMEJIMA HISANAO
TANIGUCHI HIROSHI
GOSHIMA AKIHIKO
HAYAKAWA YUTAKA
APPLICANT(s): MATSUSHITA ELECTRIC IND CO LTD
APPL. NO.: 2001-186219 [JP 2001186219]
FILED: June 20, 2001 (20010620)
INTL CLASS: G01C-021/00; G06T-011/60; G08G-001/137; G09B-029/00; G09B-029/10

ABSTRACT

PROBLEM TO BE SOLVED: To provide an electronic-map display device, in which map data can be updated in real-time and by which the map data in a large capacity can be provided stably.

SOLUTION: In the electronic-map display device, first map data which is stored in a nonrewritable large-capacity storage medium is read out to be displayed on a screen. The display device is provided with a means by which second map data stored in a rewritable semiconductor storage medium is read out, the time stamp of the first map data is **compared** with the **time stamp** indicating the **update** point of time of the second map data, the second map data is read out, when the time stamp of the second map data is slower than the time stamp of the first map data, and the first map data is read out to be displayed on the screen, when the time stamp of the first map data is identical with, or is faster than the time stamp of the second map data.



**24/5/2 (Item 2 from file: 347)**
DIALOG(R)File 347:JAPIO


04260486 **Image available**
CELL ORDER MATCHING SYSTEM FOR ATM SWITCH

PUB. NO.: 05-252186 [JP 5252186 A]
PUBLISHED: September 28, 1993 (19930928)
INVENTOR(s): OTERU YOICHI
SATO SHOHEI
APPLICANT(s): NEC CORP [000423] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 04-048404 [JP 9248404]
FILED: March 05, 1992 (19920305)
INTL CLASS: [5] H04L-012/48; H04Q-003/52; H04Q-011/04
JAPIO CLASS: 44.3 (COMMUNICATION -- Telegraphy); 44.4 (COMMUNICATION -- Telephone)
JOURNAL: Section: E, Section No. 1487, Vol. 18, No. 10, Pg. 108, January 10, 1994 (19940110)

ABSTRACT

PURPOSE: To correct the inversion of cell order at the time of dispersion routing in a switch and to adapt a system to an in-switch broadcasting function, as well.

CONSTITUTION: A time stamp generation control circuit 3 adds a time stamp to each input cell and informs a switch exit part of the number of cells for which the same time stamp is added. Each halfway unit switch module in

the case of broadcasting a cell multiplies the number of copies by the previous number of copies and adds the result to the cell. A time stamp recording and updating circuit 6 temporarily stores the cell in a buffer, **compares** the **time stamp** value added to the cell with the oldest time stamp value in the switch, and sends matched cells out to an output line and **updates** the oldest **time stamp** in the switch when the number of time stamps in a cell sent out becomes zero by substracting it by one over several numbers of copies recorded on the cell.

**24/5/3 (Item 3 from file: 347)**
DIALOG(R)File 347:JAPIO


03482992 **Image available**
MANAGEMENT INFORMATION SYSTEM

PUB. NO.: 03-145892 [JP 3145892 A]
PUBLISHED: June 21, 1991 (19910621)
INVENTOR(s): ENDO NAOMI
APPLICANT(s): NEC CORP [000423] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 01-285808 [JP 89285808]
FILED: October 31, 1989 (19891031)
INTL CLASS: [5] H04Q-003/58
JAPIO CLASS: 44.4 (COMMUNICATION -- Telephone)
JAPIO KEYWORD: R131 (INFORMATION PROCESSING -- Microcomputers & Microprocessers)
JOURNAL: Section: E, Section No. 1113, Vol. 15, No. 371, Pg. 18, September 18, 1991 (19910918)

ABSTRACT

PURPOSE: To **generate** diversified statistic data at an external computer by **converting** a message sent in a form of call event in the conversion of the information of one call **record** form information while integrating the call from the arrival till the restoration and saving the information to 1st and **2nd storage sections** .

CONSTITUTION: A private branch exchange (ACD) 1 sends a call from an **input output** controller (IOC) 80 to a management information system (MIS) 90 in a call event system for each state transition of a series of incoming calls. A CPU 96 adds a reception time to a message data and **stores** the result to a reception message buffer (RBA) 92. Then the buffer RBA 92 is searched to retrieve a call event message relating to the same office line trunk sequentially and to **generate** call code form information and saves the information to a memory 94 and also to a hard disk 100. Then a raw statistic data is open to customers and an external computer possessed by each customer prepare a statistic data in response to the **request** of each customer.

**24/5/4 (Item 4 from file: 347)**
DIALOG(R)File 347:JAPIO


01703453 **Image available**
AUTOMATIC RETURNING SYSTEM OF COMMAND DATA

PUB. NO.: 60-181953 [JP 60181953 A]
PUBLISHED: September 17, 1985 (19850917)
INVENTOR(s): KIMURA AKIO
APPLICANT(s): FUJITSU LTD [000522] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 59-037819 [JP 8437819]
FILED: February 29, 1984 (19840229)
INTL CLASS: [4] G06F-013/00; G06F-015/20
JAPIO CLASS: 45.2 (INFORMATION PROCESSING -- Memory Units); 45.4 (INFORMATION PROCESSING -- Computer Applications)

JAPIO KEYWORD:R139 (INFORMATION PROCESSING -- Word Processors)
JOURNAL: Section: P, Section No. 427, Vol. 10, No. 34, Pg. 60, February 08, 1986 (19860208)

ABSTRACT

PURPOSE: To simplify input operation of a command data by providing on an **input / output** device a means for **extracting** successively plural command data from a storage device and returning them to a main device, in case when an **inquiry** from the main device has been received.

CONSTITUTION: A user of a word processor inputs in advance from a keyboard 41 various command data for designating a printing format to plural **documents** , and **stores** them in a response data accumulating part 42. When a printing processing part 32 of a main device 3 is started, an indicating command for **inquiring** about a printing format of the first **document** is sent out to an **input / output** device 1 from an indicating command transmitting part 33, and this indicating command is transferred to an **additional device** 4, too, in parallel to the **input / output** device 1. A response command generating part 45 of the **additional device** 4 **generates** a response command and transfers it to the main device 3. The main device 3 transfers a **document** accumulated in a **document** accumulating part 31 in **accordance** with the response command transferred from the **additional device** 4.

**24/5/5 (Item 1 from file: 350)**


015949939 **Image available**
WPI Acc No: 2004-107780/200411
XRPX Acc No: N04-085701

**Real-time relational database updating method for office product service shop, involves determining whether times stamp received from disconnected database client matches current** time stamp **, to** update **database**

Patent Assignee: WILMOT G J (WILM-I)
Inventor: WILMOT G J
Number of Countries: 001 Number of Patents: 001
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| US 20040003009 | A1 | 20040101 | US 2002187916 | A | 20020701 | 200411 | B |

Priority Applications (No Type Date): US 2002187916 A 20020701
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| US 20040003009 | A1 | | 11 | G06F-017/30 | |

Abstract (Basic): US 20040003009 A1

NOVELTY - An update request (124) for a database cell (118) including a time stamp indicating a last change time of data, is sent through electronic-mail from a database system (106) to a disconnected client (102). When a time stamp received from the client **matches** a current **time stamp** , the database cell is updated, else the updated is rejected.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) recorded medium storing program for updating in real-time relational database;

(2) system for updating in real-time relational database;

(3) database; and

(4) database server.

USE - For updating real-time relational database for office products service shop.

ADVANTAGE - Provides reliable real-time update transactions between a disconnected database client and the database, without requiring the client to connect directly to the database or to replicate the database.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of

the system for updating real-time relational database.
client (102)
electronic-mail server (104)
database system (106)
database cell (118)
update request (124)
pp; 11 DwgNo 1/4
Title Terms: REAL; TIME; RELATED; DATABASE; UPDATE; METHOD; OFFICE; PRODUCT ; SERVICE; SHOP; DETERMINE; TIME; STAMP; RECEIVE; DISCONNECT; DATABASE; CLIENT; MATCH; CURRENT; TIME; STAMP; UPDATE; DATABASE
Derwent Class: T01
International Patent Class (Main): G06F-017/30
File Segment: EPI

**24/5/6 (Item 2 from file: 350)**
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

015249754 **Image available**
WPI Acc No: 2003-310680/200330
XRPX Acc No: N03-247223
**Computer program product on computer-readable medium e.g. disk has client cache timestamp set corresponding to last** update timestamp **for corresponding user node so that stored user data are uncoalesced**
Patent Assignee: INT BUSINESS MACHINES CORP (IBMC )
Inventor: DAVIS C E; FISHER B A; GREENFIELD J S
Number of Countries: 001 Number of Patents: 001
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| US 6516336 | B1 | 20030204 | US 99392035 | A | 19990908 | 200330 | B |

Priority Applications (No Type Date): US 99392035 A 19990908
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| US 6516336 | B1 | | 18 | G06F-015/14 | |

Abstract (Basic): US 6516336 B1
NOVELTY - A program code unit stores user data for each user in a client cache with a client cache **timestamp** . Each user is **associated** with the selected user node and the client cache timestamp is set corresponding to the last **update timestamp** for the corresponding user node so that stored user data are uncoalesced.
USE - For computer-readable medium e.g. disk used in computer systems.
ADVANTAGE - Reduces the system cache storage requirements for maintaining coalesced images. Improves performance and reduced the consumed memory in client and server environment.
DESCRIPTION OF DRAWING(S) - The figure shows the hierarchical structure that illustrates the use of a two-tiered cache.
pp; 18 DwgNo 4/7
Title Terms: COMPUTER; PROGRAM; PRODUCT; COMPUTER; READ; MEDIUM; DISC; CLIENT; CACHE; SET; CORRESPOND; LAST; UPDATE; CORRESPOND; USER; NODE; SO; STORAGE; USER; DATA
Derwent Class: T01; U14
International Patent Class (Main): G06F-015/14
File Segment: EPI

**24/5/7 (Item 3 from file: 350)**
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

013661718 **Image available**
WPI Acc No: 2001-145930/200115
XRPX Acc No: N01-106712
**Garbage collection for computer memory management system, by identifying cards updated later than remembered set of cars and change of pointers**

**referring to memory object in car, to** update **cars and car** time stamp

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC )
Inventor: AZAGURY A; KOLODNER E K; PETRANK E; YEHUDAI Z
Number of Countries: 001 Number of Patents: 001
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| US 6148310 | A | 20001114 | US 98139754 | A | 19980825 | 200115 | B |

Priority Applications (No Type Date): US 98139754 A 19980825
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| US 6148310 | A | | 13 | G06F-017/30 | |

Abstract (Basic): US 6148310 A

NOVELTY - Memory heap is partitioned into old and young areas. Old area is partitioned into cars with car **time stamp** and **associated** with card markings with card **time stamp** . Cards that are **updated** later than remembered set of selected cars, and change in pointers referring from card to memory object in car, are identified to update remembered set of cars and car **time stamp associated** with it.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) system for garbage collection of memory objects in memory heap;

(b) storage medium

USE - For computer memory management system.

ADVANTAGE - Enables to keep track of the scanned cards and overcomes the limitations of the train algorithm utilizing remembered sets and card markings for old generation applications.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram illustrating the operational step of garbage collection application.

pp; 13 DwgNo 4/5

Title Terms: GARBAGE; COLLECT; COMPUTER; MEMORY; MANAGEMENT; SYSTEM; IDENTIFY; CARD; UPDATE; LATE; SET; CAR; CHANGE; POINT; REFER; MEMORY; OBJECT; CAR; UPDATE; CAR; CAR; TIME; STAMP
Derwent Class: T01
International Patent Class (Main): G06F-017/30
File Segment: EPI

**24/5/8 (Item 4 from file: 350)**
DIALOG(R)File 350:Derwent WPIX


013370179 **Image available**
WPI Acc No: 2000-542118/200049
Related WPI Acc No: 2004-079819
XRPX Acc No: N00-400904

**Encoded real time multimedia data generation in teleconferencing system, by stamping video frame with** adjusted **presentation** time stamp , **to compensate difference between theoretical time stamp and oscillator clock**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC )
Inventor: KESSELRING W D
Number of Countries: 001 Number of Patents: 001
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| US 6081299 | A | 20000627 | US 9826492 | A | 19980220 | 200049 | B |

Priority Applications (No Type Date): US 9826492 A 19980220
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| US 6081299 | A | | 17 | H04N-009/475 | |

Abstract (Basic): US 6081299 A

NOVELTY - An oscillator clock is **compared** with theoretical presentation **time stamp** (PTS) and based on comparison result, oscillator clock is selectively adjusted to provide an **adjusted**

presentation **time stamp** which compensates difference between theoretical points and oscillator. The video frame within the real time multimedial data stream is stamped with adjusted PTS.

DETAILED DESCRIPTION - A coarse adjustment mode is selected if the difference between the theoretical PTS and the oscillator clock is more than predetermined threshold value. If difference between the theoretical PTS and oscillator clock is less than or equal to preset threshold value, fine adjustment mode is selected. An INDEPENDENT CLAIM is also included for the following:

(a) system for generating encoded real time multimedia data stream;

(b) computer program product for multimedia data stream

USE - In the field of multimedial systems such as teleconferencing system, video cassette recorder, consumer electronic device.

ADVANTAGE - Visual artifacts are lessened by reducing the number of encoded video frame which are discarded by the decoder. System cost is reduced by reducing the need for special interface hardware, to compensate inaccurate frame rates produced by consumer electronic devices. System performance is improved by minimizing disruption of the decoder's decompression.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of real time multimedial system.

pp; 17 DwgNo 1A/10

Title Terms: ENCODE; REAL; TIME; DATA; GENERATE; TELECONFERENCE; SYSTEM; STAMP; VIDEO; FRAME; ADJUST; PRESENT; TIME; STAMP; COMPENSATE; DIFFER; THEORY; TIME; STAMP; OSCILLATOR; CLOCK

Derwent Class: W02; W04

International Patent Class (Main): H04N-009/475

File Segment: EPI

**24/5/9 (Item 5 from file: 350)**

DIALOG(R)File 350:Derwent WPIX



012584746 **Image available**

WPI Acc No: 1999-390853/199933

XRPX Acc No: N99-293246

**Synchronization method for file of internet user to network service including world wide web WWW server - involves informing file name of updated file to sub server when file renewal on master server is monitored and detected, in order for sub server to acquire corresponding file from master server**

Patent Assignee: NIPPON TELEGRAPH & TELEPHONE CORP (NITE )

Number of Countries: 001 Number of Patents: 001

Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| JP 11154110 | A | 19990608 | JP 97319488 | A | 19971120 | 199933 | B |

Priority Applications (No Type Date): JP 97319488 A 19971120

Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| JP 11154110 | A | | 5 | G06F-012/00 | |

Abstract (Basic): JP 11154110 A

NOVELTY - A sub server (20) acquires corresponding file from a master server (10) after the file name of an updated file is informed to the sub server when file renewal on the master server is monitored and detected. DETAILED DESCRIPTION - The file of the sub server, connected to the master server through a network, is then updated and synchronized with the file renewal of the master server.

USE - For file of internet user to network service including WWW server

ADVANTAGE - Synchronizes and updates files of servers at high speed. Reduces load accompanied by synchronization since need to detect **updated** file, which **compares time stamp** and size of files in server, becomes unnecessary. DESCRIPTION OF DRAWING(S) - The figure shows a system block diagram showing the file synchronization method.

(10) Master server; (20) Sub server.
Dwg.1/1
Title Terms: METHOD; FILE; USER; NETWORK; SERVICE; WORLD; WIDE; WEB; SERVE; INFORMATION; FILE; NAME; UPDATE; FILE; SUB; SERVE; FILE; RENEW; MASTER; SERVE; MONITOR; DETECT; ORDER; SUB; SERVE; ACQUIRE; CORRESPOND; FILE; MASTER; SERVE
Derwent Class: T01
International Patent Class (Main): G06F-012/00
International Patent Class (Additional): G06F-003/06
File Segment: EPI

**24/5/10 (Item 6 from file: 350)**
DIALOG(R)File 350:Derwent WPIX


012567220 **Image available**
WPI Acc No: 1999-373327/199932
XRPX Acc No: N99-278696
**Database consistency method for intermittently connected clients**
Patent Assignee: NORTHERN TELECOM LTD (NELE )
Inventor: CHAN K Y; CRADDOCK A J; PARSONS E W
Number of Countries: 025 Number of Patents: 001
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| EP 926608 | A2 | 19990630 | EP 98309352 | A | 19981116 | 199932 | B |

Priority Applications (No Type Date): US 97997795 A 19971224
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| EP 926608 | A2 | E | 30 | G06F-017/30 | |

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

Abstract (Basic): EP 926608 A2
NOVELTY - The computer system has a number of client computers involving databases and intermittently interconnecting with each other. When connected the respective databases need to be made consistent. At the time of **connection** the computers compare **time - stamp** information and **update** both clients to the newest state. Subsequently when either client connects to another client the changes are propagated further. Various strategies can be used to resolve conflicts.
USE - Consistency updating of intermittently connected clients
ADVANTAGE - Avoids using server for updating hence provides scalable system
DESCRIPTION OF DRAWING(S) - The figure shows the actions of the remote node.
Identify shared objects when connecting to another client (140)
Determine which objects are most recent (152)
Update relevant database (156,158)
pp; 30 DwgNo 10/18
Title Terms: DATABASE; CONSISTENCY; METHOD; INTERMITTENT; CONNECT; CLIENT
Derwent Class: T01
International Patent Class (Main): G06F-017/30
File Segment: EPI

**24/5/11 (Item 7 from file: 350)**
DIALOG(R)File 350:Derwent WPIX


012115522 **Image available**
WPI Acc No: 1998-532434/199845
XRPX Acc No: N98-415441
**Consistency maintenance method for a multiple exchange database - involves slave exchange using consistency checks to determine which data updates to use and/or forward to other exchanges.**

Patent Assignee: NOKIA TELECOM OY (OYNO ); NOKIA NETWORKS OY (OYNO )
Inventor: PENTIKAINEN J; PENTIKAEINEN J
Number of Countries: 082 Number of Patents: 011
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| WO 9843450 | A1 | 19981001 | WO 98FI245 | A | 19980320 | 199845 | B |
| FI 9701209 | A | 19980922 | FI 971209 | A | 19970321 | 199851 | |
| AU 9865015 | A | 19981020 | AU 9865015 | A | 19980320 | 199909 | |
| EP 931422 | A1 | 19990728 | EP 98910758 | A | 19980320 | 199934 | |
| | | | WO 98FI245 | A | 19980320 | | |
| CN 1220809 | A | 19990623 | CN 98800329 | A | 19980320 | 199943 | |
| NZ 332860 | A | 20000327 | NZ 332860 | A | 19980320 | 200022 | |
| FI 105870 | B1 | 20001013 | FI 971209 | A | 19970321 | 200055 | |
| KR 2000011156 | A | 20000225 | WO 98FI245 | A | 19980320 | 200102 | |
| | | | KR 98709317 | A | 19981118 | | |
| AU 731020 | B | 20010322 | AU 9865015 | A | 19980320 | 200122 | |
| JP 2001516543 | W | 20010925 | JP 98545070 | A | 19980320 | 200170 | |
| | | | WO 98FI245 | A | 19980320 | | |
| US 6445905 | B1 | 20020903 | WO 98FI245 | A | 19980320 | 200260 | |
| | | | US 98194074 | A | 19981120 | | |

Priority Applications (No Type Date): FI 971209 A 19970321
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| WO 9843450 | A1 | E | 16 | H04Q-003/58 | |
| Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW | | | | | |
| Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW | | | | | |
| FI 9701209 | A | | | H04Q-000/00 | |
| AU 9865015 | A | | | | Based on patent WO 9843450 |
| EP 931422 | A1 | E | | | Based on patent WO 9843450 |
| Designated States (Regional): AT BE CH DE DK ES FI FR GB IE IT LI NL PT SE | | | | | |
| NZ 332860 | A | | | H04Q-003/58 | |
| FI 105870 | B1 | | | H04Q-003/58 | Previous Publ. patent FI 9701209 |
| KR 2000011156 | A | | | H04Q-003/58 | Based on patent WO 9843450 |
| AU 731020 | B | | | H04Q-003/58 | Previous Publ. patent AU 9865015 |
| | | | | | Based on patent WO 9843450 |
| JP 2001516543 | W | | 16 | H04Q-003/545 | Based on patent WO 9843450 |
| US 6445905 | B1 | | | H04Q-007/00 | Based on patent WO 9843450 |

Abstract (Basic): WO 9843450 A

The communications system, e.g. mobile terminals, has a master exchange (DXT1) and a backup exchange (DXT2). Both contain a database (DB1,DB2) of subscriber data maintained primarily over a connecting link. A number of slave exchanges (DXT3-6) also contain copies of the databases. In normal practice updates provided to the master are re-distributed to the other databases. When a communications outage occurs inconsistencies can arise.

When a slave exchange receives an **update** , it **compares** a **time stamp** with its own data. If it is older it returns its own data to the sender of the update.

ADVANTAGE - Aids maintenance of database consistency by a multiple path delivery of latest updates.

Dwg.1/3

Title Terms: CONSISTENCY; MAINTAIN; METHOD; MULTIPLE; EXCHANGE; DATABASE; SLAVE; EXCHANGE; CONSISTENCY; CHECK; DETERMINE; DATA; UPDATE; FORWARD; EXCHANGE
Derwent Class: W01; W02
International Patent Class (Main): H04Q-000/00; H04Q-003/545; H04Q-003/58; H04Q-007/00
International Patent Class (Additional): H04M-003/00; H04M-003/22
File Segment: EPI

24/5/12 **(Item 8 from file: 350)**
DIALOG(R)File 350:Derwent WPIX


011996684 **Image available**
WPI Acc No: 1998-413594/199835
Related WPI Acc No: 1995-302252; 1996-355005
XRPX Acc No: N98-321960
**Alert receiver interface for emergency weather warnings - records severe weather message and** updates **day and** time stamp **after end of received oscillating tone which is transmitted before message**
Patent Assignee: GROPPER D R (GROP-I)
Inventor: GROPPER D R
Number of Countries: 001 Number of Patents: 001
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| US 5781852 | A | 19980714 | US 94207537 | A | 19940307 | 199835 | B |
| | | | US 94337198 | A | 19941107 | | |
| | | | US 96692948 | A | 19960807 | | |

Priority Applications (No Type Date): US 96692948 A 19960807; US 94207537 A 19940307; US 94337198 A 19941107
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| US 5781852 | A | | 10 | H04B-001/16 | CIP of application US 94207537 |
| | | | | | CIP of application US 94337198 |
| | | | | | CIP of patent US 5444433 |
| | | | | | CIP of patent US 5574999 |

Abstract (Basic): US 5781852 A
The interface (2) has an FM receiver receiving severe weather messages by radio alert message means. At least one oscillating tone is transmitted before the message. A phase locked loop (PLL) connected to the receiver detects the beginning and end of the tone.
A recording device, connected to the receiver, records the message, after the end of the tone. An audible day and **time stamp** device, also **connected** to the receiver, updates and stores the current day and time each time the tone is decoded by the PLL. The interface can play back the audible day and time stamp and the message.
ADVANTAGE - The listener does not miss a message if they are away from the receiver.
Dwg.1/5
Title Terms: ALERT; RECEIVE; INTERFACE; EMERGENCY; WEATHER; WARNING; RECORD ; SEVERE; WEATHER; MESSAGE; UPDATE; DAY; TIME; STAMP; AFTER; END; RECEIVE ; OSCILLATING; TONE; TRANSMIT; MESSAGE
Derwent Class: S03; W02; W05
International Patent Class (Main): H04B-001/16
File Segment: EPI

24/5/13 **(Item 9 from file: 350)**
DIALOG(R)File 350:Derwent WPIX


010684310 **Image available**
WPI Acc No: 1996-181266/199619
XRPX Acc No: N96-152305
**Cache management method for e.g distributed file systems in computer networks - modifying** timestamp associated **with file I/O operation and indicating when data in cache block was accessed, such that block appears to have been accessed at different time than indicated by** updated timestamp
Patent Assignee: INT BUSINESS MACHINES CORP (IBMC ); IBM CORP (IBMC )
Inventor: BURNETT R C
Number of Countries: 005 Number of Patents: 003
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| EP 706135 | A1 | 19960410 | EP 95306900 | A | 19950929 | 199619 | B |

JP 8115241 A 19960507 JP 95254854 A 19951002 199628
US 5644751 A 19970701 US 94317981 A 19941003 199732

Priority Applications (No Type Date): US 94317981 A 19941003
Cited Patents: 4.Jnl.Ref; EP 463874
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
EP 706135 A1 E 13 G06F-012/12
Designated States (Regional): DE FR GB
JP 8115241 A 12 G06F-012/00
US 5644751 A 10 G06F-012/08

Abstract (Basic): EP 706135 A

The method of managing a cache (11) divided into blocks each of which has an **associated timestamp** indicating when data in the block was last accessed involves determining whether a file I/O operation can be serviced by blocks in the cache. If the file I/O operation cannot be serviced, data is flushed from one or more blocks of the cache beginning with the block having the oldest timestamp.

Data associated with the file I/O operation is stored in one or more blocks, and the timestamp identifying when the block associated with the file I/O operation is used is **updated** . The **timestamp** of at least on block associated with the file I/O operation is altered, such that during a subsequent file operation, the block will appear to have been accessed either earlier or more recently than indicated by the **updated time stamp** .

USE/ADVANTAGE - Provides equitable use of cache among file data in cache. Prevents large file from stealing cache space by establishing small area of cache in which large file blocks can be stored and recycled without requiring least recently used evaluation process.

Dwg.1/6

Title Terms: CACHE; MANAGEMENT; METHOD; DISTRIBUTE; FILE; SYSTEM; COMPUTER; NETWORK; MODIFIED; ASSOCIATE; FILE; OPERATE; INDICATE; DATA; CACHE; BLOCK ; ACCESS; BLOCK; APPEAR; ACCESS; TIME; INDICATE; UPDATE
Derwent Class: T01
International Patent Class (Main): G06F-012/00; G06F-012/08; G06F-012/12
International Patent Class (Additional): G06F-012/08
File Segment: EPI

**24/5/14 (Item 10 from file: 350)**
DIALOG(R)File 350:Derwent WPIX


009588481 **Image available**
WPI Acc No: 1993-282027/199336
XRPX Acc No: N93-216695

Programmable **controller for controlling peripheral devices when in on-line mode - has device for automatically placing one input and output module in changeable state in response to** request **signals**

Patent Assignee: MITSUBISHI DENKI KK (MITQ )
Inventor: ASAI T; YABUSAKI T
Number of Countries: 003 Number of Patents: 005
Patent Family:
Patent No Kind Date Applicat No Kind Date Week
EP 559163 A2 19930908 EP 93103333 A 19930302 199336 B
US 5408229 A 19950418 US 9324951 A 19930302 199521
EP 559163 A3 19940629 EP 93103333 A 19930302 199527
EP 559163 B1 19971112 EP 93103333 A 19930302 199750
DE 69315100 E 19971218 DE 615100 A 19930302 199805
EP 93103333 A 19930302

Priority Applications (No Type Date): JP 9244735 A 19920302
Cited Patents: No-SR.Pub; 1.Jnl.Ref; EP 426134; US 3818199; WO 8400829
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
EP 559163 A2 E 21 G05B-019/05
Designated States (Regional): DE GB

US 5408229 A 20 H04Q-001/00
EP 559163 B1 E 24 G05B-019/05
Designated States (Regional): DE GB
DE 69315100 E G05B-019/05 Based on patent EP 559163
EP 559163 A3 G05B-019/05

Abstract (Basic): EP 559163 A
The controller has CPU module for controlling operation of peripheral devices in on-line mode **according** to a sequence **program** . The CPU repeatedly performs end processing while performing sequence processing. An input module inputs information from a first peripheral device to the CPU. An output module outputs control signals from the CPU to a **second** peripheral **device** .
One of the input and output modules includes a change **requesting** device for outputting a module change **request** signal to the CPU during an on-line mode thereof. The CPU has a change **request** data table for retrieving and **storing** the module change **request** signals as **request** data. A change processing device automatically places one of the input and output modules in a changeable state in response to the **request** signal.
ADVANTAGE - **I / O** modules are replaced in on-line mode without requiring peripheral device. User does not need to know number of **I / O** module to be changed or predetermined word or bit device addresses.
Dwg.2/13
Title Terms: **PROGRAM** ; CONTROL; CONTROL; PERIPHERAL; DEVICE; LINE; MODE; DEVICE; AUTOMATIC; PLACE; ONE; INPUT; OUTPUT; MODULE; CHANGE; STATE; RESPOND; **REQUEST** ; SIGNAL
Derwent Class: T01; T04; T06
International Patent Class (Main): G05B-019/05; H04Q-001/00
International Patent Class (Additional): G06F-011/00
File Segment: EPI

**24/5/15 (Item 11 from file: 350)**
DIALOG(R)File 350:Derwent WPIX


009401678 **Image available**
WPI Acc No: 1993-095188/199312
XRPX Acc No: N93-072781
Image **combination and display system -** stores **video signals of still and moving** images **and combines them for display**
Patent Assignee: HITACHI LTD (HITA )
Inventor: FUJITA R; FUKUNAGA Y; KATSURA K; YANAI N
Number of Countries: 003 Number of Patents: 011
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| DE 4231158 | A1 | 19930318 | DE 4231158 | A | 19920917 | 199312 | B |
| JP 5073028 | A | 19930326 | JP 91235925 | A | 19910917 | 199317 | |
| JP 5249950 | A | 19930928 | JP 9245775 | A | 19920303 | 199343 | |
| US 5519449 | A | 19960521 | US 92945937 | A | 19920917 | 199626 | |
| DE 4231158 | C2 | 19970410 | DE 4231158 | A | 19920917 | 199719 | |
| US 5680175 | A | 19971021 | US 92945937 | A | 19920917 | 199748 | |
| | | | US 95513022 | A | 19950809 | | |
| JP 10232667 | A | 19980902 | JP 91235925 | A | 19910917 | 199845 | |
| | | | JP 9856412 | A | 19910917 | | |
| US 5900917 | A | 19990504 | US 92945937 | A | 19920917 | 199925 | |
| | | | US 95513022 | A | 19950809 | | |
| | | | US 97903259 | A | 19970725 | | |
| US 6049360 | A | 20000411 | US 92945937 | A | 19920917 | 200025 | |
| | | | US 95513022 | A | 19950809 | | |
| | | | US 97903259 | A | 19970727 | | |
| | | | US 98210903 | A | 19981216 | | |
| JP 3092581 | B2 | 20000925 | JP 91235925 | A | 19910917 | 200051 | |
| | | | JP 9856412 | A | 19910917 | | |
| JP 3283281 | B2 | 20020520 | JP 9245775 | A | 19920303 | 200236 | |

Priority Applications (No Type Date): JP 9245775 A 19920303; JP 91235925 A

' 19910917; JP 9856412 A 19910917
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| DE 4231158 | A1 | | 41 | H04N-005/262 | |
| JP 5073028 | A | | | G09G-005/36 | |
| JP 5249950 | A | | | G09G-005/36 | |
| US 5519449 | A | | 27 | H04N-009/74 | |
| DE 4231158 | C2 | | 39 | H04N-005/262 | |
| US 5680175 | A | | 36 | H04N-007/01 | Div ex application US 92945937<br>Div ex patent US 5519449 |
| JP 10232667 | A | | 20 | G09G-005/36 | Div ex application JP 91235925 |
| US 5900917 | A | | | H04N-005/445 | Div ex application US 92945937<br>Cont of application US 95513022<br>Div ex patent US 5519449<br>Cont of patent US 5680175 |
| US 6049360 | A | | | H04N-005/445 | Div ex application US 92945937<br>Cont of application US 95513022<br>Cont of application US 97903259<br>Div ex patent US 5519449<br>Cont of patent US 5680175<br>Cont of patent US 5900917 |
| JP 3092581 | B2 | | 20 | G09G-005/39 | Div ex application JP 91235925<br>Previous Publ. patent JP 10232667 |
| JP 3283281 | B2 | | 21 | G09G-005/377 | Previous Publ. patent JP 5249950 |

Abstract (Basic): DE 4231158 A

The system **stores** information about a still **image** , supplied by an **image** read-out or a disc, and about moving pictures, supplied by a camera, are **stored** in an **image** memory (1-8). The two types of information are combined to provide and display a combined **image** .

A control (15) determines the memory locations in the **image** memory in a variable manner for containing the information signals of the two types. Pref. the **image** memory contains several memory elements of identical design such that the elements are available for **storing** the respective information signal types.

USE/ADVANTAGE - For combining computer graphics with video signals, with common use of memory for input and output operations.

Dwg.1/31

Title Terms: **IMAGE** ; COMBINATION; DISPLAY; SYSTEM; STORAGE; VIDEO; SIGNAL; STILL; MOVE; **IMAGE** ; COMBINATION; DISPLAY
Derwent Class: P85; W02; W04
International Patent Class (Main): G09G-005/36; G09G-005/377; G09G-005/39; H04N-005/262; H04N-005/445; H04N-007/01; H04N-009/74
International Patent Class (Additional): G06F-003/153; G06F-015/66; G09G-005/00; H04N-005/265; H04N-007/15; H04N-007/18
File Segment: EPI; EngPI

**24/5/16 (Item 12 from file: 350)**
DIALOG(R)File 350:Derwent WPIX


007782934 **Image available**
WPI Acc No: 1989-048046/198907
XRPX Acc No: N89-036933

**Indexed sequential data file concurrent access - comparing group modification times to respective time stamp corresp. to reading of preceding record**

Patent Assignee: WANG LAB INC (WANG )
Inventor: GRAND A
Number of Countries: 007 Number of Patents: 007
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| EP 303231 | A | 19890215 | EP 88112940 | A | 19880809 | 198907 | B |
| AU 8820046 | A | 19890216 | | | | 198915 | |
| US 4823310 | A | 19890418 | US 8784253 | A | 19870810 | 198918 | |
| CA 1288521 | C | 19910903 | | | | 199140 | |
| EP 303231 | A3 | 19920708 | EP 88112940 | A | 19880809 | 199334 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| EP 303231 | B1 | 19971029 | EP 88112940 | A | 19880809 | 199748 |
| DE 3856055 | G | 19971204 | DE 3856055 | A | 19880809 | 199803 |
| | | | EP 88112940 | A | 19880809 | |

Priority Applications (No Type Date): US 8784253 A 19870810
Cited Patents: No-SR.Pub; 3.Jnl.Ref
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| EP 303231 | A | E | 17 | | |
| | Designated States (Regional): BE DE FR GB | | | | |
| US 4823310 | A | | 12 | | |
| EP 303231 | B1 | E | 18 | G06F-017/30 | |
| | Designated States (Regional): BE DE FR GB | | | | |
| DE 3856055 | G | | | G06F-017/30 | Based on patent EP 303231 |

Abstract (Basic): EP 303231 A

An indexed sequential file is made accessible for random or sequential reading of records while allowing concurrent modification to the file. Each ordered group of records in the file is associated with times tamps referencing a deletion time of the group and the time that the group was last modified. During a current search in a group for a desired record, the timestamp referencing a deletion time of the group is compared to a search time established at the beginning of the search. For a sequential reading the timestamp referencing a last modification time of a group containing the desired record is **compared** to a respective **timestamp** corresponding to the reading of the preceeding record.

The comparisons provide indications of whether the group to which the desired record belongs is currently the group to be searched. The most recently modified and deleted groups are stored in cache memory. When the cache memory is full, an incoming group and respective times tamps replaces the least recent or least likely to be used group and respective times tamps

Title Terms: INDEX; SEQUENCE; DATA; FILE; CONCURRENT; ACCESS; COMPARE; GROUP; MODIFIED; TIME; RESPECTIVE; TIME; STAMP; CORRESPOND; READ; PRECEDE ; RECORD
Derwent Class: T01
International Patent Class (Main): G06F-017/30
International Patent Class (Additional): G06F-007/00; G06F-009/46; G06F-015/40
File Segment: EPI